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The Research Quarterly

of the

American Physical Education Association

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F. W. Cozens.
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Report of the Committee on Dancing in Elementary Schools

By Committee on Dancing in Elementary Schools

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Committee Procedure

A tentative working outline, prepared by the Chairman, was sent to each member of the Committee with a request for criticisms and suggestions relative to the appropriateness of the topics included, and the need of teachers for help on these subjects. The outline was revised in the light of the suggestions returned by the Committee and it was again sent to the members for their approval and for selection of topics to be covered by each member. Topics were assigned according to the preference of the members.

Each member prepared his assigned section independently and sent it to the Chairman. The various sections were then integrated in so far as possible, and sent to each member of the Committee for approval or criticism. In this way each Committee member had an opportunity to read and criticize the entire report before it was finally submitted.

Introduction

The foundation of success in teaching children is sympathetic understanding of childhood. A sound basis of child psychology, a study of the child's growth and development, and a deep affection for him are essentials which every teacher in an elementary school should have. Without these she is bound to fail, even though her training in subject matter has been well-nigh perfect. She teaches, not physical education, but children. "The course of study" is not games, nor dancing, nor fine arts, but "the child."[1]

"That the present-day graduates of most teacher-training schools have received little that fits them to interpret and use the principles of the newer education is shown when they go to a school in which there has been an effort to modernize the work. . . ."[2] It is the responsibility of those engaged in training teachers to prepare their students to understand and solve the problems of the elementary school child. The theoretical knowledge acquired in the classroom must be supplemented by first hand observation of children and experience with them in the demonstration school. The student in training must realize that children are individuals growing in different ways, representing countless variations in capacities, temperaments, and social inheritance.

Because it is our earnest desire that the child be understood, it has seemed appropriate to briefly summarize the chief characteristics of children at two rather typical age levels. It must always be kept in mind, however, that while one will find many similar characteristics in all children at the same stages of growth, nevertheless each child is different from his fellows and his individual traits must be studied and developed.

[1] Patri, Angelo, "The School and Home." New York, D. Appleton and Co. 1925. p. 19.
[2] Bonser, Frederick G., "Needed Changes in Teacher Training." Progressive Education. March 1931. Vol. VIII. No. 3.

The elementary school child is ceaselessly active in body and in mind. The word "go" expresses his behavior and his interest. He loves to go and he loves to make things go. At approximately the first grade level, activity is indulged in for the sheer enjoyment of it rather than from any idea of acquiring skills in a movement. The child loves to run, skip, jump, roll, slide, dig, climb, pound, throw, and use his body in large movements, but he has little desire to run fast, to jump high, or to excel the next child in these abilities. On the whole he considers things important only as they contribute to present enjoyment. Voluntary attention is not easy to give and the attention span is very short. His imagination is vivid and he is often unable to distinguish the real from the unreal; he delights in such imaginative characters as fairies, elves, and giants. His interest in the physical world is intense and he loves to imitate animals, birds, the rain, the wind, and the sun. He craves sympathetic interest from adults and if he does not receive it he may develop types of restless behavior which will make him the center of attention. Such behavior often alternates with shyness, self-consciousness, or unusual submissiveness. At this age fears are easily acquired and the child should be skillfully guided so that these will not develop. The sensory life at this age is of great importance. Few of us realize how vital it is to the child. He wants to see, to hear, to touch.[3]

At approximately the sixth grade level he is moving in a world made up primarily of his own kind. Grown-ups are considered far from his interests, occupations, and plans. Many adult actions seem incomprehensible to him: at best, foolish; at worst, unfair. Their impulses are not yet vital and he views them with amusement or intolerance. His eagerness to experiment, his impulsiveness, his wide-awake energy, his desire to make things happen lead him into all sorts of situations which, to most adults, seem sheer perversity. His reasoning is imperfect and he is not yet advanced enough to generalize on principles of conduct. Orders or directions must be specific. He is anxious to acquire skills and is willing to practice a long time to achieve his goal. Competition is his life. He must know who runs the fastest, who jumps the farthest, who throws the ball the most accurately. He can tell you who is the best dancer, the best sport or the best captain. The adult who can appreciate and understand the complicated characteristics, the real motives at work—who can enter into his sport and his pranks, who is serious and respectful at the right times, who knows when to laugh—may cross over the gulf and win his trust and love.[4]

Although much technical material is presented in the following

[3] The above characteristics are adapted from Norsworthy, Naomi, and Whitley, Theodora. "Psychology of Childhood."
[4] The above characteristics are taken from Norsworthy, Naomi and Whitley, Theodora. Op. Cit.

report it is with the hope that this will be only a tool to help the teacher in developing the child's creative expression.

I. OBJECTIVES*

Objectives are definite goals to be achieved by education. They should be concrete and specific so that one may know when they have been reached. They should be the direct outcomes which pupils are supposed to accomplish. They tell us what subject matter to accept or reject. They are the milestones on the road leading to the end towards which instruction in that subject is moving. They define the end of action; they point the way and direct the process of action.[1]

Just as the aims and objectives of physical education are built upon the aims of general education, so must the objectives in dancing be built upon the objectives for physical education. The objectives for physical education have been stated as follows:

1. "Objectives in development of certain instinct mechanisms, closely associated with muscular equipment, and involving the neuro-muscular and organic systems. . . .
2. "Objectives related to the intellect, that is, thinking and judgment. . . .
3. "Objectives of a social nature: social standards and values, attitudes, ideals."[2]

In the preface of "Principles of Physical Education,"[3] Dr. Williams discusses the purpose of physical education under four divisions as follows:

1. Development of the organic systems of the individual through physical activities.
2. Development of the neuro-muscular system in general, and particularly in relation to control of certain fundamental skills.
3. Development of certain attitudes toward physical activity and particularly toward play.
4. Development of standards of conduct.

It was with the aid of the above divisions and with the section in Dr. Williams' book[4] on "Objectives in Rhythmic Expression," prepared by Gertrude K. Colby, that we have set up the objectives listed herein.

In attempting to set up objectives for dancing in elementary schools, we have traveled a comparatively uncharted and often bewildering sea. Little has been written on dancing in elementary schools which could guide us. We have followed the accepted authorities in curriculum construction—namely, Hopkins, Harap, and Charters—and have adapted the principles recommended by them.

* This section was prepared by Dorothy LaSalle and adopted by the Committee.
[1] Hopkins, L. Thomas, "Curriculum Principles and Practices." Chicago, Sanborn, 1928.
[2] Williams, J. F., "Principles of Physical Education." Phila., W. B. Saunders Co., 1927, pp. 294-297.
[3] Ibid.

The following criteria of Harap[4] were used to help us eliminate certain items.

1. Is it adequately attained outside of school?
2. How important is it?
3. How interesting is it?
4. Is achievement within the capacity of the pupil?

To this list of four criteria we added Brigg's statement: "The primary purpose of the school is to teach its pupils to do better the desirable things that they are most likely to do anyway."

In using the objectives which will soon be presented to you the teacher is, at the outset, confronted with a very important problem. These objectives can only be suggestive. She must set up her own objectives for each class. She must study each individual. Each group of children has its special problems and needs. The objectives must be adapted to fit these needs.

The following list of *objectives* was prepared, and a selected group of experienced graduate students and the Committee were asked to indicate if they were desirable or undesirable, and if desirable, in what grades they should be sought. In addition they were asked to add any objectives that had been omitted. Every individual but one checked all of the objectives as desirable and only one objective was added to the list and that by two people.

Physiological.

1. Wholesome stimulation of organic systems.
2. Rhythmic coordination (balance, control, poise).

Neuro-Muscular.

1. To *walk* in rhythm to music
   Alone
   With another child
2. To *skip* in rhythm to music
   Alone
   With another child
   With two or more children
3. To *run* in rhythm to music
   Alone
   With another child
   With two or more children
4. To *slide* in rhythm to music
   Alone
   With another child
   With two or more children
5. To *gallop* in rhythm to music
   Alone
   With another child
   With two or more children

[4] Harap, Henry, "The Techniques of Curriculum Making." New York, Macmillan, 1928.

6. To *hop* in rhythm to music
7. To *leap* in rhythm to music
   Alone
   With another child
   With two or more children
8. To *polka* in rhythm to music
   Alone
   With another child
   With two or more children
9. To *schottische* in rhythm to music
   Alone
   With another child
   With two or more children
10. To do *3's* in rhythm to music
    Alone
    With another child
    With two or more children
11. To do *5's* in rhythm to music
    Alone
    With another child
    With two or more children
12. To do *7's* in rhythm to music
    Alone
    With another child
    With two or more children
13. To *waltz* in rhythm to music
    Alone
    With another child
14. To *fox-trot* in rhythm to music
    Alone
    With another child

Social.

1. Development of rhythmic sense.
2. Development of group-consciousness.
3. Overcoming of self-consciousness through physical poise.
4. Appreciation of art contributions of other countries.
5. Appreciation of movement in relation to line and space.
   circles squares lines diagonals
6. Appreciation of music
   To recognize mood
   To recognize change of phrase
   To recognize double time
   To recognize triple time
7. Create simple dance forms.
8. Free expression.

The following tables show the way the two groups checked the objectives:

OBJECTIVES IN DANCING FOR ELEMENTARY SCHOOLS

B=Boys
G=Girls

Present Position.....
.....

JUDGMENTS OF COMMITTEE

	Desirable		Check grade in which this objective should first be sought											
	Yes	No	1	2	3	4	5		6		7		8	
							B	G	B	G	B	G	B	G
Physiological														
1. Wholesome stimulation of organic systems	9		9											
2. Rhythmic Coordination (balance, control, poise)	8		7		1						1	1		
Neuro-Muscular														
1. To *walk* in rhythm to music														
Alone	8		8		1									
With another child	7		7	2										
2. To *skip* in rhythm to music														
Alone	8		8			1								
With another child	8		6	2	1									
With 2 or more children	8		5	2	2									
3. To *run* in rhythm to music														
Alone	7		8											
With another child	7		6	3	1									
With 2 or more children	7		6	1	2									
4. To *slide* in rhythm to music														
Alone	8		6	1				1	1					
With another child	7		5	2	1		1	1						
With 2 or more children	7		6	1	1	1								
5. To *gallop* in rhythm to music														
Alone	7		7							1				
With another child	7		5	1	2		1	1						
With 2 or more children	7		5	1	1	1								
6. To *hop* in rhythm to music	8		7		1									
7. To *leap* in rhythm to music														
Alone	7					4		1			1	3		
With another child	7					2		3				2		
With 2 or more children	6	1				3				3		1		
8. To *polka* in rhythm to music														
Alone	7				4	2		2		1				
With another child	7				3	3		2				1		
With 2 or more children	7				2	3		3						
9. To *schottische* in rhythm to music														
Alone	7				2	2		4				1		
With another child	8				1	3		3				1		
With 2 or more children	7				1	2		4						

Objective	Desirable Yes	Desirable No	Check grade in which this objective should first be sought — 1	2	3	4	5 B	5 G	6 B	6 G	7 B	7 G	8 B	8 G
10. To do *3's* in rhythm to music														
Alone	7						7	7			1	1		
With another child	7						6	6	1	2				
With 2 or more children	7						7	7		1				
11. To do *5's* in rhythm to music														
Alone	7						3	3	2	3	2	2		
With another child	7						1	2	5	5				
With 2 or more children	6	1					2	2	3	4	1	1		
12. To do *7's* in rhythm to music														
Alone	7						2	2	4	4	1	1	1	
With another child	7						1	2	2	2	3	3		
With 2 or more children	6	1					1	1	3	3	1	1		
Ball Room Dancing														
13. To *waltz* in rhythm to music														
Alone	7				1	1	2	2		1	2	2		
With another child	6	1			1	1	2	2	1	1	1	1		
Ball Room Dancing														
14. To *fox trot* in rhythm to music														
Alone	5	2				2			1	1	3	3		
With another child	6	1				2			1	1		3	3	
Add here other objectives which should be included.														
Free Expression (social)	4		4											
Social														
1. Development of rhythmic sense	7		8											
2. Development of Group-consciousness	7		8	1										
3. Overcoming of self-consciousness through physical poise	7		7				1	1						
4. Appreciation of art contribution of other countries	7		2		1	6								
5. Appreciation of movement in relation to line and space														
Circles	7		4		1	3		1			1	1		
Squares	6					5				1	1	1		
Lines	6		2		2	2				1	1	1		
Diagonals	5					3		1	1		1	1		
6. Appreciation of music														
To recognize mood	7		7	1						1	1	1		
To recognize change of phrase	6		5	1	1	2								
To recognize double time	6		3		1	1	1	2						
To recognize triple time	6				1	3	1	3						
7. To create simple dance forms	7			2	4			2		1				

OBJECTIVES IN DANCING FOR ELEMENTARY SCHOOLS

B=Boys
G=Girls

Present Position.....
.....

JUDGMENTS OF GRADUATE STUDENTS

	Desirable		Check grade in which this objective should first be sought											
	Yes	No	1	2	3	4	5 B	5 G	6 B	6 G	7 B	7 G	8 B	8 G
Physiological														
1. Wholesome stimulation of organic systems	46		34	3	3	2		1		1				1
2. Rhythmic Coordination (balance, control, poise)	35		20	3	4	5		2						1
Neuro-Muscular														
1. To *walk* in rhythm to music														
Alone	43		42	3	1									
With another child	42		30	8	5									
2. To *skip* in rhythm to music														
Alone	33		29	7	3	1								
With another child	41		20	18	5	1		1						
With 2 or more children	39		11	20	5	3		1						
3. To *run* in rhythm to music														
Alone	34		30	7	1	3								
With another child	40		22	15	7			1		1				
With 2 or more children	39		16	13	13					2				
4. To *slide* in rhythm to music														
Alone	34	1	14	18	8			2		1				
With another child	40		4	22	12	5				1		1		
With 2 or more children	37		5	14	16	4		1	1			1		
5. To *gallop* in rhythm to music														
Alone	39	1	20	10	4	4		1						1
With another child	37		14	12	9	5		1						1
With 2 or more children	35	1	11	10	10	6				1				1
6. To *hop* in rhythm to music	35	1	13	11	12	1		2				1		
7. To *leap* in rhythm to music														
Alone	34	2	5	6	16	8		1	2	4		2		
With another child	39	1	1	4	13	10		7	2	4	1	3	1	1
With 2 or more children	30	2	1	4	9	8	1	4	2	2		3		1
8. To *polka* in rhythm to music														
Alone	37			5	9	12	4	13	1	1		1		1
With another child	39			4	8	14	5	11	2	5	1	3		1
With 2 or more children	35	1		1	8	11	5	12	2	3	1	3		
9. To *schottische* in rhythm to music														
Alone	37			2	7	5	4	17	5	7	2	3		1
With another child	39			2	3	10	3	15	2	6	2	6	2	3
With 2 or more children	34	1		1	2	8	4	8	2	7	2	6	1	2

Objective	Desirable		Check grade in which this objective should first be sought											
	Yes	No	1	2	3	4	5		6		7		8	
							B	G	B	G	B	G	B	G
10. To do *3's* in rhythm to music														
Alone	41				1	5	12	17	7	11	5	8	1	1
With another child	37	1		1		4	13	13	6	13	4	5	1	2
With 2 or more children	34	2			1	3	9	9	6	11	6	8	1	1
11. To do *5's* in rhythm to music														
Alone	36	1			1	1	7	10	8	12	9	15	8	7
With another child	34	2		1		1	6	7	9	10	9	20	3	5
With 2 or more children	33	2			1		4	5	10	11	7	13	2	3
12. To do *7's* in rhythm to music														
Alone	37	1		1		1	3	5	10	11	9	15	5	8
With another child	36	2			1	1	3	4	8	11	8	11	6	11
With 2 or more children	34	2			1	1	3	3	7	9	8	10	5	10
Ball Room Dancing														
13. To *waltz* in rhythm to music														
Alone	34	2		1	1	4	4	3	1	4	6	13	8	10
With another child	39	2				3	6	5	4	6	9	14	9	16
Ball Room Dancing														
14. To *fox trot* in rhythm to music														
Alone	36	7				1	3	4	4	6	4	7	9	11
With another child	34	6				2	1	1	4	5	7	11	13	18
Add here other objectives which should be included														
Social														
1. Development of rhythmic sense	46		39	2	2	1		1						
2. Development of Group-consciousness	44		25	5	9	2		1	1	1				
3. Overcoming of self-consciousness through physical poise	44		18	1	2	7	5	7		3	1	2	3	1
4. Appreciation of art contribution of other countries	41		5		6	8	7	8	8	6	5	5	2	5
5. Appreciation of movement in relation to line and space														
Circles	40	2	21	5	6	7	2	2	2	2	1	2	1	2
Squares	38	1	5	2	7	10	5	9	3	5	2	2	1	2
Lines	39		13	5	2	8	7	8	2	3	1	4	3	3
Diagonals	39		3	1	6	2	7	9	6	9	8	5	3	3
6. Appreciation of music														
To recognize mood	35		10	7	3	5	2	4	5	6	1	2		4
To recognize change of phrase	39		9		7	4	9	8	2	4	4	5		3
To recognize double time	36	1	3	6	4	7	4	5	3	4	2	3	4	7
To recognize triple time	31	2		2	4	6	2	2	1	4	5	5	7	10
7. To create simple dance forms	37	1	7	6	9	7	3	3	1	1		4	1	7

Objectives for First Grade

By studying the preceding tables given, one finds that the following objectives are recommended for the first grade:

Physiological Objectives

JUDGMENTS OF GRADUATE STUDENTS	JUDGMENTS OF COMMITTEE
1. Wholesome stimulation of the organic systems.	1. Wholesome stimulation of organic systems.
2. Rhythmic coordination.	2. Rhythmic coordination.

Objectives in Neuro-Muscular Skills.

1. To walk (march) in rhythm to music both alone and with partner.	1. Same as judgment of graduate students.
2. To skip in rhythm to music, alone and with partner.	2. To skip in rhythm to music, alone, with another child, and with two or more children.
3. To run alone in rhythm to music. The group was almost equally divided in the grade placement of running with a partner and with two or more children. Twenty-two felt that running with a partner should be an objective for the first grade and fifteen felt it should be placed in the second grade. Sixteen thought that running with two or more children in a group was a legitimate objective for the first grade while thirteen thought it should be placed in the second grade.	3. To run in rhythm to the music alone, with another child and with two or more children.
4. To gallop alone in rhythm to the music. Fourteen thought a child in first grade could be expected to gallop with another child, twelve thought he could do it in second grade, and nine felt he could not do it until the third grade. To gallop with two or more children was placed in the first grade by ten, in the second grade by eleven, in the third grade by ten, and in the fourth grade by six.	4. To slide alone in rhythm to the music, with another child and with two or more children.
5. To hop in rhythm to the music was placed in the first grade by thirteen, in the second grade by eleven, and in third grade by twelve.	5. To gallop in rhythm to music alone, with another child and with two or more children.

	6. To hop in rhythm to music.
Social Objectives	
1. Development of rhythmic sense.	1. Same as graduate students.
2. Development of group consciousness.	2. Same as graduate students.
3. Overcoming of self-consciousness.	3. Same as graduate students.
4. Appreciation of movement in relation to circles, lines and squares.	4. Same as graduate students.
	5. To recognize the mood of the music.
	6. To recognize change of phrase in music.
	7. To originate free movement in interpretation of music without suggestions from the teacher (free expression).

It is assumed that all first grade objectives will be stressed in the second grade.

Objectives in Second Grade

The objectives especially recommended for the second grade by these groups are:

Neuro-Muscular Skills	
To skip in rhythm to the music with two or more children.	No recommendations.
2. To run in rhythm to the music with another child and with two or more children (almost equally divided with the first grade. See first grade objectives).	
3. To slide in rhythm to the music alone, and with another child. Fourteen placed sliding with two or more children in the second grade and sixteen placed it in the third grade.	
4. To gallop in rhythm to the music with another child and with two or more children (almost equally divided with the first grade. See first grade objectives).	
5. To hop in rhythm to the music. (See first grade objectives, Item 5.)	

Objectives in Third Grade

Neuro-Muscular Skills

1. To run in rhythm to the music with two or more children (See first grade objectives).
2. To slide in rhythm to the music with another child or with two or more children. (See second grade objectives, Item 3.)
3. To gallop in rhythm to the music with another child and with two or more children. (See first grade objectives, Item 4.)
4. To hop in rhythm to the music. (See first grade objectives, Item 5.)
5. To leap in rhythm to the music alone and with another child. (Thirteen placed the latter item in the third grade and ten in the fourth grade. Nine placed leaping with two or more children in the third grade, and eight placed it in the fourth grade.)

1. To polka alone in rhythm to the music.

To polka in rhythm to the music with another child. (Three placed this objective in third grade and three placed it in fourth grade.)

Objectives in Fourth Grade

Neuro-Muscular Skills

1. To leap in rhythm to the music with another child and with two or more children. (See objectives for third grade, Item 5.)
2. To polka in rhythm to the music alone, with another child, and with two or more children. (Twelve placed this objective in the fourth grade, and thirteen in the fifth grade.)

1. To leap in rhythm to the music alone.

2. To polka in rhythm to the music with two or more children (see objectives in third grade).

Social

No Recommendations.

1. Appreciation of art contributions of other countries.
2. Appreciation of movement in relation to squares.
3. Appreciation of movement in relation to diagonals.
4. To create simple dance forms.

Objectives in Fifth Grade

Neuro-Muscular Skills

1. To polka alone, with another child and with two or more children. (See objectives for fourth grade, Item 2.)

2. To schottische in rhythm to the music, alone, with another child, and with two or more children.

3. To do 3's in rhythm to the music alone and with another child. (Thirteen placed this objective in the fifth grade and thirteen placed it in the sixth grade.)

4. To do 5's in rhythm to the music, alone. (Ten placed this objective in the fifth grade and twelve placed it in the sixth grade.)

1. To schottische in rhythm to music, alone, with another child, and with two or more children.

2. To leap with another child.

3. To do 3's in rhythm to the music alone, with another child, and with two or more children.

4. To do 5's in rhythm to the music alone.

Objectives in Sixth Grade

Neuro-Muscular Skills

1. To do 3's in rhythm to the music with another child and with two or more children. (See fifth grade objectives, Item 3.)

2. To do 5's in rhythm to the music with another child and with two or more children. (Ten thought that to do 5's with another child should be sought in the sixth grade while twenty thought it should be placed in the seventh grade. Eleven thought that to do 5's with two or more children was a legitimate objective for the sixth grade, while thirteen thought it should be placed in the seventh grade.)

3. To do 7's in rhythm to the music alone. (Eleven placed this in the sixth grade and fifteen in the seventh grade.)

To do 7's in rhythm to the music with another child. (Eleven placed this in the sixth grade and eleven in the seventh grade.)

1. To leap in rhythm to the music with two or more children.

2. To do 5's in rhythm to the music with another child and with two or more children.

3. To do 7's in rhythm to the music, alone.

To do 7's in rhythm to the music with two or more children. (Nine placed this in the sixth grade, ten in the seventh, and ten in the eighth.)

Objectives in Seventh Grade

Neuro-Muscular Skills

1. To do 5's in rhythm to the music with another child and with two or more children. (See objectives for sixth grade, Item 2.)
2. To do 7's in rhythm to the music alone, with another child and with two or more children. (See objectives for sixth grade, Item 3.)
3. To waltz alone in rhythm to the music. (Thirteen placed this in seventh grade and ten in eighth.)
4. To waltz with another child in rhythm to the music. (Fourteen placed this in the seventh grade and sixteen in the eighth grade.)

1. To do 7's in rhythm to the music with another child.

Objectives in Eighth Grade

Neuro-Muscular Skills

1. To do 7's in rhythm to the music with another child and with two or more children. (See objectives for sixth grade, Item 3.)
2. To waltz in rhythm to the music alone and with another child. (See objectives for seventh grade, Item 3.)
3. To fox trot in rhythm to the music alone and with another child.

No Recommendations.

Conclusions

Although these statistics are in no way conclusive the following stand out:

1. With one or two exceptions both the Committee and the graduate students agreed that all of the objectives herein listed were desirable. (One committee member of wide experience is of the opinion that ballroom dancing is not a legitimate objective in physical education.)
2. The great overlapping of objectives in the various grades would seem to indicate that the objectives might well be set up for

two grades together; i. e., first and second grades; third and fourth grades, fifth and sixth grades; seventh and eighth grades.

3. Both graduate students and the Committee agreed in general regarding the grade placement of the fundamental skills of walking, running, skipping, sliding, and galloping.

4. Many of the graduate students had no opinion whatsoever regarding social objectives although all checked them as desirable. Of those who checked them there was no agreement, and within the Committee itself there was no agreement as to the grade placement of these objectives. One is led to wonder if the objectives in neuro-muscular skills have been emphasized to the neglect of the social objectives.

5. With the graduate students the concensus of opinion was that leaping should not be attempted before the third grade. The Committee's judgment was that it was not a legitimate objective before the fourth grade.

6. Both the Committee and the graduate students agreed that clogging (to do 3's alone) was not a legitimate objective before the fifth grade.

7. The scattering opinions regarding dancing for boys would seem to indicate that very little is being done throughout the country. Neither the graduate students nor the Committee had very definite judgments regarding this field. (See the report on Dancing for Boys.)

II. METHODS*

I. INTRODUCTION

General Method.[1] Method is a way of getting things done. More specifically it is the most economical way of getting things done. Other things being equal, a teacher who requires three periods to teach successfully the same dance that another imparts in one is using an inferior method. Even with good material she could not successfully reach the goal set up. The good teacher knows how to utilize her material effectively in order to attain the desired objectives. But if her material is poor she has nothing to manipulate to reach the purposed end. Even excellent method cannot triumph over poor material. It is impossible to separate one from the other. Many teachers of physical education now find themselves with old aims and new material. Instead of formal gymnastics they are teaching dances, games, athletics. These teachers especially must change their methods or the aims and objectives will not be realized. The method entirely appropriate for calisthenics will not suffice for this newer, more vital material.

* This section was prepared by Mary P. O'Donnell and adopted by the Committee.

[1] The section of this report dealing with General Method was adapted largely from Hopkins, "Curriculum Principles and Practices," Kilpatrick, "Foundations of Method," Harap, "Technique of Curriculum Making."

According to Hopkins in "Curriculum Principles and Practice" one vital requirement of good method is that it shall keep the aims and objectives before the pupils. Thinking in terms of physical education, this will hold true for the neuro-muscular and social objectives but not for the physiological. It would obviously be highly undesirable to inform a child of six that he must be an elephant in order to use his fundamental muscles and thereby wholesomely stimulate his organic systems. It is equally obvious that the TEACHER should ALWAYS be guided by the physiological objectives in the selection of suitable material. The children must understand, however, why they are being taught to dance and how each particular dance helps to bring them closer to the desired goal. The teacher must connect these objectives with the most dominant interests of the children either in school or out. This obviously implies that she must have an understanding of child nature in order that she may be able to interest her classes without overstimulating them. Only with these guiding principles can teaching become increasingly effective. How often have we seen the teacher of dancing give an excellent performance, the pupils a hopelessly listless one. They were indeed little more than spectators, for the motivation or urge to dance was from without rather than from within. In other words the drive was the teacher's, not the children's. This lack of proper motivation is even more clearly exemplified in the improper use and incorrect method of teaching technique. So often it is presented as an end in itself instead of as a means to better dancing, and thus the children do not understand its purpose or its future usefulness to them.

Teachers will sometimes stimulate interest by appealing to false incentives such as showing-off, rivalry, prizes, and the like. The enthusiasm thus aroused bears no relation to the values inherent in the activity but to unworthy or extraneous aims. The children work not because they are interested in dancing but because they want to get a prize or show-off to greater advantage than their neighbors.

A child not interested in dancing for its own sake will often become engrossed by its relationship to other subjects of activities. "Things uninteresting in themselves become interesting because of their bearings on things that are interesting." As Kilpatrick says, in the last analysis you can't "make" things interesting. But latent capacities and powers can be stimulated so as to arouse interest. To create an interest in a thing is to reveal how attractively the material is presented. Even though a child is not interested in physical activity or in dancing, nevertheless we believe it is *beneficial* for him to have such activity. His willing, intelligent, uncoerced effort can be secured only by connecting dancing with already existing interests. Only this uncoerced effort will have any carry-over power, and in the end may be productive of a direct interest.

Physical education given half a chance cannot fail to attract children, because it is concerned with movement. Physical movement with children is an essential to any activity that is to prove interesting. But activity in physical education must not be disassociated from other related activities if all its inherent educational possibilities are to be realized. A class, vitally concerned with the study of Indian life, may perform an Indian dance automatically and without enthusiasm if that dance is presented as a series of muscular movements performed to count, at worst, or to a traditional Indian melody, at best. It is not sufficient for a child "to learn to do by doing." He must want to do. Most children want to dance if their desire is not crushed by inane or unsuitable material badly taught. It would probably be an overstatement to say that they all love to dance. Due to individual differences some other forms of motor activity may be preferred. On the other hand, children sometimes think they dislike dancing because it has been spoiled for them by bad teaching.

If a child has great interest in learning a particular dance he must be helped along the way by having opportunities for judging his own results. Only thus can he realize how nearly he has reached his goal. In judging, he discovers his strong points and his weak points and decides what to do next. He sees where further practice is needed. Children are generally better satisfied with the results of their own critical evaluation than with those of the teacher. They sometimes cannot understand her judgments, which in the last analysis do not tell them *how* to think but merely *what* to think about their own particular skill in dancing.

The wise teacher will realize that she must use not one method of teaching dancing but many. This will vary with the purpose of teaching. For example, a bit of technique, a polka, will naturally be handled very differently than a folk-dance. The former is to be acquired as a skill, the latter as an understanding and appreciation of folk customs and rituals. To present only the skills in a folk-dance is to miss half the values inherent in the lesson. A child must be able to move with ease and assurance through the patterns of a dance, but he must also understand and appreciate its meaning, and its relationships.

In physical education there is especial need for standardization of method. A graduate from one school will teach the children in the fifth grade by one method. Upon promotion to the sixth grade these children will pass to another method. This cannot but lead to confusion, loss of time, and lower standards of achievement. An understanding of this danger, leading to cooperation between teachers in the same school will do much to lessen the resulting evils.

Materials in dancing must be organized in advance with some

free time left open for the unpredictable need. If teaching is carried on by means of units of instruction, with possible seasonal or subject matter correlations, the term's work must be planned in advance. Otherwise the activities in the gymnasium cannot be related to the rest of the curriculum. If they remain isolated they cannot even approximate the most vital factors inherent in worthy aims and objectives. In addition to relating dancing to other subjects of instruction, its immediate or subsequent value in social life should be established. The child should know that it has a direct bearing upon art, music, geography, sociology—even though none of the latter may be his outstanding concern at the time.

Learning is of two types, direct and indirect. Good method takes care of both. Directly, it insures the maximum achievement in dancing. Indirectly, it provides for all the important concomitant or simultaneous learnings that Kilpatrick warns us will come whether we do anything about them or not. The skillful teacher will engender attitudes favorable not only to dancing but to physical education as a whole, not only to herself but to all teaching, to being taught and to school in general. When method concerns itself with the establishing of the first and best simultaneous learnings it is infinitely more than mere efficiency or economy of teaching. It can build every variety of attitude toward working with other children in groups, toward the form of those groups, toward singing, music, and toward his own motor capacity and possibilities. The teacher of dancing should therefore be concerned with all the responses children make when they work. The narrower problem for the teacher of dancing is to see that the children learn specific dances. At the time these are of value in themselves but we must not let this value blind us to the further possibilities for more complete education inherent in the situation.

Content

In any attempt to discuss methods, some mention of content must be made. They cannot be separated. On the other hand to discuss specific material would be fruitless when perhaps three teachers in ten know and teach exactly the same dances. It seems advisable first to outline the types of material appropriate to the elementary grades, and second to set up a single criterion for the selection of specific activities.

Materials	*Grades*
Fundamental rhythms	1 — 6
Pantomimic and Dramatic Rhythms	1 — 4
Dramatic and Singing Games	1 — 3
Folk Dances	3 — 6
Natural Dances	5 — 6
Clog and Athletic Dances	5 — 6
Character Dances	5 — 6

The most valuable activities selected from any of these classifications will hold possibilities for large free movements of the whole body—of the fundamental muscle groups rather than for careful meticulous manipulation of the smaller accessory muscles.

Fundamental rhythms include walking, running, hopping, skipping, sliding, galloping, and leaping. They are so-called because they are fundamental to so many dances. They are indeed the backbone of many dances. Pantomimic and dramatic rhythms are those purely imitative activities in which a child reproduces for his own satisfaction and growth the movements of animals, of natural phenomena, such as rain, wind, or sun, and "acts" as if he were the object impersonated.

Dramatic and singing games are usually, and folk-dances are always, traditional forms, inherited rather than composed; racial in their essence and significance rather than individual.

Natural dances generally grow out of the dramatic rhythms experienced earlier. They are built upon fundamental rhythms selected and arranged to interpret the mood and fit the form of the accompanying music. They may be either lyrical or dramatic in content. If well-composed they synchronize harmoniously the mood or story with the rhythmic patterns and the floor pattern. They offer the greatest opportunity for creative work and individual expression of personality.

Character dances are closely related to natural dances inasmuch as they are usually pantomimic or dramatic rhythms grown up and put into dance form. To do a witch dance is much more advanced than to be and to act like a witch. Such a dance involves the making of witch-like movements in witch-like groups and patterns. In other words the dance has a new element, that of "form." It is cast in a mould that is consistent with its expressive quality.

Clogs are related to both folk dances and character dances. Irish jigs illustrate the first type, the "Buck and Wing" characteristic of the American Negro; the second, and other clogs, such as "On Deck," "Pirates," "Old Man," "Forty-Nine," and the like, delineate more universal characters through the same medium.

It may seem strange to many that no mention is made of tap dancing. At root, tap dancing and clog dancing are the same. Tap dancing as it is usually taught presupposes some knowledge of clogging and is therefore more advanced. For this reason it is not suitable for the elementary grades. Neither tap dancing nor clog dancing should be granted a very large time allotment in the dance program. As Miss Frost says, "Is satisfaction of that primitive need of beating time enough to justify the giving of hours in a program of physical education to a practice of steps without relation to musical mood or interpretation? I believe it is not. The true educational approach lies

through the character dance whether it be in the form of a clog, a jig, or a tap dance."[2]

Clog-dancing and tap-dancing are valuable when the child becomes more interested in the play, as distinguished from the art, aspect of dancing. This change of interest occurs usually in the seventh or eighth grades. They also serve invaluably by making it possible for children whose rhythmic education has been neglected to enjoy a form which does not unduly strain their underdeveloped abilities to move freely and expressively. Unfortunately, in the minds of these children to move freely and expressively means to be "graceful."

In this latter capacity, clogging is an excellent entering wedge to the enjoyment of folk and natural dancing. Whenever it is taught it must measure up to criteria (including the musical) that are set up for dancing in general. Many of the jazz melodies so frequently used for tap-dancing would not meet these standards. It may be argued that the music of most clog dances has no great value. This is true. But this music has at least proven its fitness to survive "because of its folk quality or because of its merit and interest as a musical composition." Such tunes as "Dixie" and "Sally in Our Alley" fall into these categories.

II. ORGANIZATION

Boys and girls should dance together during the first four grades. A physical education period for these groups should offer a variety of activities, since the attention span of the young child precludes the possibility of securing long continued interest in one activity. Boys and girls should continue to dance together during the fifth and sixth grades whenever this is possible. Certain folk-dances and some clogs are admirably suited for use in mixed classes. In the two upper grades better results are usually obtained by devoting a whole period to one type of activity—that is, a period for dancing, one for games, and one for stunts. This is true because of the mental growth of the child, and because of the greater difficulty of dancing it should be completely informal. Practically it should be as informal as the physical conditions permit. There are situations where the ratio between the size of the room and the size of the group make some formal organization sensible. The amount of this formal organization should never be greater than is essential to proper teaching. For purely physical reasons it is unreasonable to require a long-legged child to maintain his position in a circle behind a stocky short-legged classmate. It is preposterous to expect him to skip freely and joyously while doing so. If, however, the custom has been to require perfect circles or lines for the practice of the fundamental rhythms, it is obvious that to suddenly release the children from these restrictions would tend toward chaos. The change must be effected gradually.

[2] Frost, Helen. "Tap, Caper and Clog." New York, A. S. Barnes and Co., 1931.

The children should be allowed to skip freely once or twice during the initial stages of the change, with suggestions for improvement and approval of their increased skill in self-control. Any moving group requires some regulation. That the children should all move in the same direction will suffice to avoid collisions from poorly regulated traffic. The teacher should not need a whistle to secure the attention of the children. Some less ear-splitting signal such as a chord from the piano should suffice. If for some reason the latter does not prove adequate a pleasant two-toned whistle should be substituted for the raucous, nerve-wracking, policeman variety so commonly employed.

III. PRESENTATION

General

To attempt to set up a uniform procedure for the presentation of all dances would be sheer folly. There are, however, both general and specific standards of good teaching which point the way to efficient instruction. First of all, the emphasis must be placed upon spirit, upon content, upon simplicity of movement and not upon mere technical skill. The latter should be used only as a means toward more complete expression. If the technical side of a dance is stressed it will become little more than a drill to music, without spirit, without color, without appeal to the imagination; in short, without anything through which the self-conscious child can momentarily forget his physical ungainliness. This does not mean that technique has no value. It means that it must not be taught unless it is going to be used. After the dances to be taught have been selected, the technique or specific dance steps essential to their good performance should be listed. When items from this list are taught, the children should clearly understand the purpose and the future usefulness of this technique. There is little need for teaching technique to elementary school children unless the fundamental rhythms are considered as such. It is not sufficient to give children an opportunity to experience these activities. They should be taught to do them increasingly well. The difference in the two procedures approximates that existing between a referee and a coach. Such technical skills as polka and schottische for a folk-dance, or a three, five, or seven for a clog will of course be needed in addition to the fundamental rhythms.

The approach with small children should be largely dramatic. A child's first interest is to represent something (a duck), then to tell something (a story from Mother Goose), much later to make something beautiful or perfect. Therefore the child should work out his own characterizations. He should not be shown how to be a duck. It is not very educational for him to copy an adult. Moreover it cannot be very vital to make duck-like movements if he has never seen a

duck or at least a picture of one. If the child creates his own characterization the result will be less finished but far more vital and meaningful to him. If the best children are chosen to demonstrate, however poor they may be, the standards of performance will gradually rise. In any event it should be remembered that value for him lies not in the immediate excellence of his performance but in the concomitant learnings, the development of imagination, originality and freedom of expression. *Later on* the teacher may have an ideal of movement in her mind and aim to approximate that as nearly as possible. It is the method by which she reaches this goal that marks the difference between a good and a poor teacher. The acquisition of skill and perfection is eventually to be desired, but this perfection must be reached through the natural interests *of the child.*

It should be eternally remembered that dancing in education is for the benefit of the child, it presupposes no onlookers, it is done with and not at others. Its function is not to entertain the parent, or satisfy the ego of the teacher by its studied polish and perfection; it is to promote the growth of the child. Just to dance is not enough, the child must dance with satisfaction. If there is no satisfaction in it for him he will not dance in the future. There will be no carry-over value.

Specific

Children seldom read a book without knowing its name, the name of the author and something of what it is about. Unfortunately this statement does not hold true for dances. So the first step in the specific presentation of a dance should be to tell its name, where it came from, what it is about, what people have danced it, something about the music which accompanies it. In short, the dance should be placed in its natural setting.[3] Next the children should listen to the music to catch its mood, since this will determine the spirit of the dance, possibly clapping quietly at the same time to establish the rhythm. It may not be feasible to attempt all of this in one hearing.

The teacher should remember that in any dance, however simple, there are two fundamental elements: first, the step-pattern or the actual movements made; second, the floor pattern or design made by moving in relation to other dancers. It is sometimes necessary to separate these two elements for teaching purposes. The child should first learn the "steps" then walk the floor pattern, then combine the two. The actual procedure might be outlined as follows: (This does not mean that this is the only possible method or that it would be always wise or necessary to use it.)

1. Demonstrate the first step or walk it with the music or both.

[3] The children should have a large share in this first step. They will enjoy greatly doing a bit of research on costumes, customs, peoples, folk or fairy.

2. Have the class dance it slowly at first if necessary, but with the music.
3. Explain the floor pattern by word or action.
4. Have the children walk through it.
5. Combine 2 and 4.

This same procedure should then be repeated for the remaining steps until the *whole dance* has been taught. The more difficult parts can then be practiced and the connections between the steps repeated until they are smooth and satisfying to perform. To reiterate, the emphasis should be placed upon spirit, upon simplicity, quietness and ease of movement, upon freedom and variety of expression. These will not materialize if straight lines and perfect circles are emphasized as the most important aims. They are important as a means toward improving the quality of the performance, and therefore the enjoyment derived from it. This is really essential only in figure dances where the form is an integral part of the dance.

By the law of readiness, a situation must be created so that the child wants to learn the dance; by the law of exercise, he must practice if it is to become truly a part of him; and by the law of effect he must perform it with satisfaction if it is truly to be learned.

IV. REVIEW

The law of exercise and the law of effect work closely together and have tremendous bearing upon the next problem—the reviewing of old dances already taught. For it is after a dance has been learned that the child enjoys it most keenly. Everything should be reviewed *at least* two or three times. Once a week the children should be allowed to select for themselves the dances to be reviewed. This review lesson is most important because it is then that skills are improved, opportunities granted for self-appraisal as well as group appraisal. What might well be termed an appreciation lesson in dancing is of tremendous value. The less successful performers should watch the more successful. They should be stimulated to think and to decide why it is that Jane's skip is better than theirs. They should be given an opportunity immediately to put the results of their decision into practice. To learn something new is a great joy. To continue to learn new things without ever improving the skills involved tends toward boredom almost as surely as constant repetition of any activity. Never to repeat what has been learned is to miss part of the reason for learning.

V. MUSIC

In the practice of fundamental rhythms children should begin to run or to skip when the music commences. A command from the teacher is never necessary except to prepare small children for unified

movements, such as those of a folk-dance. A signal from the piano will do this adequately for fifth and sixth grade children.

All of the music used should be well within the mental and emotional grasp of the child. It should be appropriate for the activity for which it is used. It should be wisely chosen music, played upon a well-tuned and advantageously placed piano. Exquisitely simple but jolly folk tunes and lovely old dance forms such as those of Mozart and Schubert can be found in abundance for the fundamental rhythms. The teacher should use five or six good tunes for each of the fundamental rhythms in order to provide variety and to broaden the child's musical experience. This variety will serve also to help the child realize that it is possible to run, for example, to more than one composition. Through this musical background of well-chosen melodies, the child will become responsive not only to tempo and meter, those factors entering into a purely rhythmic response, but also to pitch, intensity, phrasing, and mood.

He will grow to appreciate when a composition has something to say and when it is merely trite. As he listens and moves to the music he will realize that what is suited to his elephant would never do for his elf. When the child has reached the stage where he can realize that the rhythm of a good skip differs from that of a run, when he knows that music as well as prose has punctuation, when he can reject a ponderous theme for the flying of a kite, then he can be led by means of skillfully created dance pattern into an understanding of the more difficult rhythmic patterns. If the teacher falls short in musicianly standards she may err by choosing tawdry, saccarine, sophisticated melodies which will blunt the child's appreciation and lead him into the unbroken enjoyment of jazz and soothing syrup songs.

The musical value of the great mass of compositions used for dramatic and pantomimic rhythms is not very great. However, such music as Schumann's "Evening Song" or even the "Knight of the Hobby-Horse" cannot be too lightly scorned. Those selected should at least measure up to the criterion of simplicity. Even though these compositions come from the somewhat despised realm of program music, frankly telling a story, they need not be so embroidered that the melody and rhythmic pulse are not easily discernable by the child. Since the music is admittedly trying to tell something, the teacher should be certain that it does just that as clearly and approximately as possible. The use of authentic music for folk-dances and singing games is of paramount importance.

In teaching a dance it is not only unnecessary but highly undesirable to count out the music or the number of skips to be taken before a change of direction occurs. The child can feel the pulse, the repeated beat in the music so much better by clapping his hands or by patting the floor, than by counting. He can be led to feel the end of a musi-

cal phrase by practice in listening for the place where a musical idea is completed. He will learn to take eight slides to the right not because the teacher told him to do so but because the music has said something, has been punctuated and has started over again. He will start over again with it, in a new direction. In this connection it should be remembered that from a musical standpoint it is undesirable to terminate activity before the completion of a musical phrase.

Music teachers frequently and rightly object to the manner in which children sing the songs that accompany their singing games.[4] Sweetness rather than volume should characterize this vocal expression. The objection is also raised that children frequently sing out of tune because they are more interested in the words and their accompanying action than in the melody itself. Singing the melody on a syllable such as "la" will help to fix it more firmly in the minds of the children. They will then render it more accurately and with better musicianship when the words are added. It may also help at first to have one group sing while another group dances. The melody will then be learned more carefully. Frequently music teachers are very glad to cooperate by teaching some of these songs if a list is given to them at the beginning of the semester.

There is another question that is frequently asked relative to the use of music. Should a dance or part of a dance ever be taught without it? If it is necessary to teach a step so slowly that the music becomes unrecognizable it should then be omitted temporarily. In teaching a difficult step without music a teacher sometimes changes the rhythm of that step. This should be avoided for the difficulty of fitting to the music a movement that is distorted will be greater than ever. Music is occasionally omitted in an effort to remove all problems except that of mastering a particularly complex movement. It should then be reintroduced at the earliest possible moment. Many of the points emphasized relative to the use of music may seem to delay needlessly the process of teaching a dance. Even if speed were the sole criterion, the proper use of music would eventually justify itself. For a child who understands and uses music intelligently can learn to move to it much more rapidly than one whose response is but partial or totally unthinking. For after ten or twenty dances have been experienced it is too much to expect that the child will remember when there are eight skips and when there are but four. If the movement has been taught in relation to the music, hearing that music will recall the movement.

VI. CREATIVE WORK

In the first four grades children should have frequent opportunities for free interpretation of music. They should be asked to tell what it says to them. They should then choose from group sugges-

[4] They frequently sing stridently or breathlessly.

tions the idea or ideas that are most appealing and continue to work upon those. They should be allowed to create from their own imaginations and experiences. The function of the teacher is to stimulate their imaginations and enrich their experiences by all the resources at her command—stories, pictures, festivals, and the like.

In the fifth and sixth grades group interpretations can be enjoyed and simple dance forms created. This is possible even in large classes, if small groups are formed to work independently under the direction of a leader chosen by the group. This project may start with the desire to work out a dance to a favorite melody or to compose a particular kind of dance related to another activity of especial interest at the time. If an idea has furnished the stimulus the first problem is to select suitable music. With the help of the class the teacher should assemble several compositions from which the children may make their final choice. The next problem is to decide upon the movements that will best express the idea and the music. After this the groupings, formations, and floor patterns must be evolved. This detailed analysis makes the problem of creative work seem more complicated than it really is. The important steps are purposing, planning, executing, and judging. It is vital that the children have practice in all four of these.

VII. PROGRESSION

A good teacher teaches to the middle of her class, not to the upper or lower quartiles. The rate of progression will depend upon how quickly that middle group learns. The teacher must take the child where she finds him and lead him to the goal set up. That is, she must proceed from that which is old in the child's experience to that which is new. Material beyond the pupil's reach will discourage him. If a dance is too difficult, he will experience no satisfaction in learning it. The movements must be within the range of his skills, the coordinations interesting but not too advanced. In short, the material that has been selected to realize the objectives must be logically arranged. This is especially difficult to do in physical education where classes are frequently so ill-assorted and ungraded in respect to physical capacity. For this reason even greater effort must continually be made to adjust the material to the ability of the child. For if he is to grow in persistence, success as a rule is necessary. There must be a challenge from the situation but this challenge should not be so great that the better efforts of the child will not give promise of ultimate success. It is "overcoming" that educates. With very young children this overcoming must be almost immediate.

Careful progression in dancing has many elements. For example, it is easier for a child to skip alone than with another child. It is easier to skip forward than backward. Slow sustained rhythms are in general more difficult than fast ones. A triple is so much harder

than a duple rhythm that it should rarely be used with young children. Combinations of these elements increase still further the degree of difficulty. A conscious and skillfully graded progression from day to day, month to month, year to year, will go far in giving the child a true understanding and love for dancing.

There is a great need for scientific experimentation in the methods of teaching dancing, particularly in the field of specific methods. The general methods as outlined in this report rest on educational principles that have been tested.

It is vital that method be not so rigidly fixed as to remove all opportunity for originality and initiative but it is too significant to leave to the judgment of individual teachers. The best methods available should be prescribed and should be used until better ones are discovered by scientific experimentation. These should then be adopted. The prescription of no method "is carrying individual liberty to the point of anarchy."

III. SURVEY OF DANCE ACTIVITIES AND THEIR BASIC MOVEMENTS*

The great reaction against formalized subject matter and method that has characterized educational procedure in the recent past has nowhere been more in evidence than in the field of dancing. Essentially an activity of joy and freedom, dancing for little children so often in the past has been a mechanical procedure of "step and bend, step and bend, turn around and make a bow." The idea of skipping in any formation but a circle, or running in anything but eight counts, was considered disorderly, confused, and irregular. The impression doubtless was that if you once let children get out of a single file there would be grave danger of not being able to get them back. So the children marched into a circle; we condescended to tell them the name of the dance and its nationality, and then proceeded to initiate them into the complexities of pointing their right toe to the side, and shaking their left finger at their partner three times. We still have examples in some recent courses of study wherein the children, instead of *being* the Three Little Kittens who Lost Their Mittens, do perfectly meaningless movements and poses to the rhyme as it is sung.

The modern program of dancing in the elementary schools has no place for such material, if it is to adhere consistently to the best educational doctrines. On the other hand, we who teach dancing to little children have in our field unlimited scope for the most meaningful experiencing, the most creative endeavor, the greatest opportunities for self-expression, if we would but learn *what* material to

* This section was prepared by Ruth L. Murray and adopted by the Committee.

use and *how* to use it. The *how* of this question will be taken up elsewhere in this report, the *what* will concern us here.

While classifying and pigeonholing is not always desirable, it sometimes helps to clarify our thinking, and in this case will make it easier to deal with certain types of material which have the same general characteristics. The groupings used are arbitrary ones. One would by no means interpret them to mean that a third grade child must *never* learn the polka step, nor that fourth grade children *always* should. An individual teacher's judgment as to the experience, skill, and interest of her group would always be the criteria used to determine the choice of subject matter.

For purposes of efficiency then, the two age groups considered separately under the elementary school dancing program are the primary group, made up of the first, second and third grades, and the elementary group, made up of the fourth, fifth, and sixth grades. There is a growing tendency to consider the seventh and eighth grades with the Intermediate or Junior High School combination. In most cases, then, this means separate programs and instructors for boys and girls and a different set of problems. This survey will embrace only the first six grades. Comprehension of the whole program of rhythmic and dance activities and their interrelationship, will be easier if we consider first the complete *Primary* program, and then the complete *Elementary* program.

I. Survey of Rhythmic Activities and Dance Activities for Grades I, II, III

A. Rhythmic Activities.

1. Fundamental movements of locomotion and elevation. (Movements that in themselves are complete and give satisfaction.)
   a. Example: walking, running, skipping, galloping, jumping, hopping (step-hop), sliding.
2. Imitative and self-expressive activities. (Movements that in themselves would have little meaning without an imaginary element.)
   a. Examples: elephants, flowers growing up, jumping rope, etc.

B. Dance Activities.

1. Rhythmic Pantomimes. (Imitative or self-expressive activities that tell a story, or have a plot in the action.)
   a. Examples: Blowing Bubbles, The Toad's Mistake, My Shadow, etc.
2. Singing Games and Folk Dances. (Based directly on the rhythmic activities experienced by the group.)

The first group under rhythmic activities includes all the simple movements of locomotion and elevation with which the child is familiar. Most of them are used in activities of daily life and in athletic performance. Because our approach is from the rhythmic and dancing point of view, there are certain emphases of performance that are peculiar to their execution. Our first emphasis should be the rhythmic one, as it is in the performance of these simple and satisfying movements to music or to a rhythmic beat that we have the most efficient tools for developing a true rhythmic response. In these movements there is no complication of concentration on technique or imaginative expression. Most musical authorities agree that one cannot teach rhythm effectively by talking about it, singing, or even playing an instrument. One must respond physically to the rhythmic beat. In other words, the rhythmic impulse must have an outlet in physical activity. Therefore, our first teaching should not stress lightness and lift primarily, but should make sure that the child "feels" the rhythm and that his movement exactly corresponds to it.

In the large group of imitative and self-expressive activities, we have examples of all types of bodily movement that are not included in the fundamental activities of motion—arm movements, bending, swaying, swinging, pushing and pulling of the trunk, crawling and waddling, movements of complete tension and complete relaxation—all made perfectly logical and realistic to the child through his imagination. It is true that the elements of free interpretation and original expression assume great importance here, but the rhythmic element must be considered equally. For example, after the class has discussed the personal habits and appearance of the frog, they listen to the music to see how fast it jumped.

It is in these two groups then that we have the foundation, the building stones of rhythmic development in the child. This we conceive to be one of the two basic principles of dancing for children, the other being the creative aspect. A child who is a bear one day, a snowflake the next, and a dog the next will grow in agility, lightness, balance, and coordination, without being conscious of these abilities.

There is one other phase of rhythmic development that should be discussed here. The child should occasionally be provided with opportunities for free interpretation of simple musical patterns and moods. This will also aid the teacher in evaluating her rhythmic teaching.

Of the dance activities of the first three grades, the rhythmic pantomime assumes first importance. This type of activity, while offering unlimited opportunity for creative dramatic expression, also serves as an excellent medium for teaching musical understanding and appreciation. While listening to the music for imitative activities, the child has learned to describe it as either loud, soft, fast, slow, sad, happy,

jerky, smooth, and the like. It is in interpreting the pantomimes that the child is enabled to analyze the music, to discover phrasing, mood, melodic and rhythmic pattern. The activities of his interpretation should correlate exactly with those parts of the music that suggest it. In other words the music should not merely provide a background for the action, but should be an integral part of it. Our chief emphasis in the rhythmic pantomime is of course on individual dramatic expression, but it by no means follows that rhythmical movement and correlation of the action to the music should be neglected.

The second division under dance activities is that large group of singing games and folk dances which at one time constituted our complete repertoire of dances for little children. Some of them, particularly the singing games, are still very good and hold meaning and enjoyment for the child. Others are not. Let us consider the good and bad.

A child in the first, second and third grades has very little knowledge of foreign countries and foreign peoples. His interests lie in the things that immediately surround him. Therefore the possibility of the rich correlation with the social sciences that folk dancing offers to the upper grade child is lost at this age level. Then, steps like the polka and schottische, which appear so often in these dances, are too complicated for mastery at this age without a process of drill which should never characterize the dance expression of children. Too often, the thing that pleases the adult eye, that appears "cute" and "sweet" when it is performed by very young children is the dance which, for the children themselves, is far-fetched and artificial.

We have put singing games first because movements which can be accompanied by a song (always providing that the words are understood by the children) are more valuable as aids in developing rhythmic ability, and, for the most part, are more fun for the child. The value of certain folk dances is exactly in proportion to the meaning they have for the child. Dances like "Nixie Polka," the "Mountain March," and the "Cobbler Dances" may have real dramatic flavor when correctly taught. On the other hand, there are many which have no more meaning than the method which says, "The name of the dance we are going to have today is ————, and the first step goes like this!"

It might be to the point here to say that the various descriptions of dances found in books on the subject often neglect to describe the peculiar meaning of certain folk dances even when there is meaning to be found in them. In how many descriptions of the "Nixie Polka" are the "charming" habits of the Nixie included, and how many teachers know that "Looby Loo" is all about taking a bath on Saturday night?

There are few movements and steps found in desirable pattern

dances for the primary grades that are not included in the fundamental movements of locomotion. The skip can always replace the polka, the bleking step can be developed easily from the jump, and the step-hop from the hop. Only those pattern dances, should be used that are easily learned, have some other meaning for the child than just their folk connotation, and are humorous and gay in expression.

II. Outline of Rhythmic and Dance Activities for Grades IV, V, VI

A. Rhythmic Activities.
   1. Fundamental movements of locomotion and elevation.
   2. Combination of above into dance steps.
      a. Examples: *2/4* two-step, schottische, polka, threes, fives and sevens.
   3. Imitative and self-expressive activities.

B. Dance Activities.
   1. Boys and girls together:
      a. Rhythmic pantomime.
      b. Folk and national dances.
      c. Clog and character dances.
   2. Boys alone:
      a. Suitable folk and national dances (including Indian ceremonial dances).
      b. Clog, character and athletic dances.
   3. Girls alone:
      a. Suitable folk and national dances.
      b. Lyric pattern dances for groups.
      c. Creation of simple dance patterns.

Under the rhythmic activities of the elementary grades the same fundamental movements of locomotion and elevation form the basis of the rhythmic period (with the addition of the leap perhaps). Here the greater skill and control of the group will make it possible to stress a more technical performance, with a musical accompaniment that is slower and of a more complex rhythmic and melodic pattern.

A new unit of subject matter that is introduced in the elementary rhythmic period is the dance step combinations. These should be developed from the fundamental movements and danced during the rhythmic period. For example, the polka should be taught from the gallop (not as hop, step, together, step) and danced either alone or with a partner. A folk dance containing the polka should not be the occasion for weeks of drill on the basic step, but merely a new pattern using a familiar and readily performed movement. All of these dance step combinations are satisfying and complete in themselves as dance expressions if they are done freely and informally.

There is not available for the elementary grades the abundant collection of imitative activities and rhythmic pantomimes that serve for the first three grades. Because of the apparent lessening of the imaginative faculty and a more realistic outlook on life, the child of this age will be more interested in imitations of action and athletic performance than of animals and toys. Examples of these are: jumping rope, flying kites, the Tightrope Walker, and the Band Parade.

It is assumed in the foregoing that the boys and girls have at least part of their dancing together. The advisability of a complete separation for dancing before the seventh grade is open to question. There are any number of good clog and character dances which are worthwhile for mixed classes, and the folk dances for this period are predominantly social, and should be danced by boys and girls together and not by girls alone.

A survey of the most usable pattern dances for this period would seem to include the following points concerning them:

1. The dance should have meaning for the children.
   a. If a folk dance, it should correlate directly with the unit of work being done in the social sciences, or should be chosen by the group and learned from a background of study and discussion of the country it represents.
   b. If a clog or character dance, it should portray a character or an idea, and not be merely rhythmic movement.
2. The dance should be built upon steps and movements that have been completely mastered during the rhythmic period.
3. The dance should be simple and active and not too long.
4. The dance should not emphasize unduly the sexual-social aspect. In other words, there should be no coquetting or artificial posturing, and one couple alone should not be called into undue prominence.
5. The dance should always be performed freely, informally, and gaily.

Of the folk dances that are designed for men alone, and for women alone, it is quite apparent that the former group exceeds the latter. And when we add the Indian ceremonials and the clog and athletic dances, a wealth of dance material for boys is at hand. Care should be taken that the dances chosen have a particular appeal, and are not too intricate to be performed easily by the large and clumsy feet of twelve-year-old boys. It is important that boys come to realize that dancing as an activity has always been practiced as much by men as by women, and pride in the accomplishment of these authentic dances for men should be developed.

The task of choosing appropriate material for the elementary girls is of course a simpler one. Beside the array of folk and national ma-

terial, it is quite possible to use the simple natural dance technique of the fundamental movements of locomotion: the waltz, the gallop skip, and the simpler arm movements. These may then be used in lyric dance forms, preferably those that are constructed for group rather than individual performance. Girls at this age are apt to be self-conscious when dancing alone, and often fall into poses that are artificial and savor of ballet expression, particularly when this type of dancing is first presented. Rhythmic pantomimes may also be used to provide dramatic expression. What is most important, opportunity should be given with this group for the creation of simple patterns to appropriate music. Many of the elementary schools in Detroit have flourishing dance clubs which meet one night after school during the week for this type of natural dancing.

It is to be hoped that this survey has presented the possibilities in the field for a choice of rhythmic and dance activities that are meaningful and interesting to the child, that will develop the necessary basic skills, and that offer the greatest opportunities to fulfill our two most important objectives—rhythmic performance and creative expression.

IV. CORRELATION OF DANCING WITH THE REST OF THE CURRICULUM*

Physical Education has been defined as "the contribution made to the complete education of the child by the fundamental psychomotor activities (the big brain-muscle movements)." In speaking at the White House Conference, Dr. Kilpatrick said that education must deal with the whole child, that we cannot split up the child and take care of any one part, that the whole child goes into every act. It is important that all activities which contribute to education be coordinated, in order that the child's interests be satisfied, that his energies be conserved and that he have opportunity to express himself naturally and fully. The physical education program has too often been planned without due consideration for the goals set up for the complete education of the child.

Probably no phase of physical education offers as rich opportunity for correlation with other educational procedure as dancing. Dancing has a stronger appeal when it offers opportunity for natural self-expression related to other educational experiences. Music, social studies, dramatics, literature, and art, all furnish background for a variety of interesting correlations. Interests arising in these activities furnish incentive for original creative rhythmic expression on the part of the children. At times, folk and character dances fit naturally into the situation.

* This section was prepared by Ethel Rockwell and Olive Horrigan and adopted by the Committee.

In order to provide opportunity for the natural coordination of pupil activities, teachers of all subjects should be familiar with the whole curriculum, realizing that the subject matter of the so-called special subjects is important only as it contributes to the education of the whole child.

Learning units should be planned by the teachers and pupils working together. Each teacher should keep in mind the general goals as well as the goals of her special subject. The interests and needs of the child should determine all goals. When dancing is a part of such learning enterprises it has a rich background. There is incentive for creative activity on the part of the pupils, individually and in groups. Interest in investigation is aroused as pupils search for descriptions and pictures needed in their contributions to the unit. Knowing the recreational tendencies of a people enriches the general knowledge of these people. Being fairies or interpreting various phases of nature makes possible a keener appreciation of literature, nature, etc. Such learning units may originate in music, social studies, literature, dramatics, art, or other activities.

SUBJECTS PARTICULARLY ADAPTED FOR CORRELATION

Certain subjects in the elementary school lend themselves especially well to correlation with physical education. Following are a few suggestions of ways in which such correlations may be developed.

Music.

Much valuable correlation may be made between music appreciation and dance appreciation. It is necessary that children be taught to recognize simple music forms and rhythmic patterns, and that they should be given opportunity to differentiate between moods in various types of music. This learning which is acquired in the music appreciation part of the school curriculum is, however, invaluable in the physical education dancing period. Upon such a foundation the teacher of dancing may quickly and efficiently build her dancing program.

A combination "appreciation of rhythm" period is most valuable in primary grades in which the children are given the opportunity to physically respond to various types of music presented. All types of music should be included in such periods—the gay marching and skipping tempos as well as those requiring deeper appreciation of mood and story.

In creative dancing in the elementary schools, the music appreciation lesson must go hand in hand with the development of the dance. Music is the companion of the dance and to gain the most from one, we must utilize the help which the other offers.

Social Studies.

The social studies lend themselves directly to correlation with dancing. As the child studies a country in the classroom, there should be an opportunity for him to learn a dance centering about that country. In it he may be made to see the reflection of national characteristics and temperament. There is such a wide variety of folk and national dancing material at hand that it is possible to find a suitably graded dance of almost every important country in the world.

It is of the greatest importance, however, that such dance material should be authentic. A dance may be called a Russian dance simply because its author has founded it upon hazy moving picture ideas of that country. In order to be sure that dance material is authentic, the teacher should use recognized material or be certain of its source.

The practices of some city physical education departments in scheduling definite dances for certain months of the year is not endorsed, since such a policy does not allow for this valuable avenue of correlation. It is suggested that the dance outline for the elementary schools be founded upon the social studies course of study. In this way, teachers who present definite countries to a grade may find in the physical education course of study corresponding dances which may be taught as needed.

Literature.

Dancing should be used to enliven and enrich elementary school dramatics wherever possible. Folk and national dances often fit into a dramatic production, and sometimes there is opportunity for character and clog dancing.

A splendid opportunity is afforded through dramatics for the development of creative dances. The necessity for such characterizations as fairies, gnomes, witches, giants, and the like, presents the chance for fine creative effort. With the need of such characterization in a play, the child will have a real reason for building his conception of the character into dance form. This type of dance development, if wisely guided by the teacher, will prove a valuable and satisfying experience to the child.

Home Economics, Industrial and Fine Arts.

These subjects should be utilized along with physical education to promote the growth of a unit of study. Costuming for dances should be done by the pupils under the direction of the Home Economics Department. Stage scenery should be made in the industrial arts class. Art study should be of value in planning effects in dances and costumes.

All of these subjects should work hand in hand in order that they may do their share in expanding the child's experience in school.

A UNIT OF LEARNING IN PHYSICAL EDUCATION FOR FOURTH AND FIFTH GRADES*

A Dramatic Rhythm

Scenes from Rip Van Winkle

This unit was developed in the 4-A and 5-B grades of 53 pupils as the result of the children's interest in the story of "Rip Van Winkle" as told to them in Literature class, and in the song "In Storyland" which they learned in Music class.

I. An inventory of the class for whom this unit of learning was planned.

	No. of pupils in each group				
	Excellent	Very Good	Good	Fair	Poor
1. General Intelligence (I.Q.)	5	9	18	15	6
2. Rhythmic Sense. (Ability to feel rhythm)	8	13	17	11	4
3. Dramatic Sense. (Ability to express oneself dramatically.)	2	4	15	17	15
4. Ability to perform fundamental skills.	4	6	19	14	10
5. Ability to interpret music (music appreciation)	3	7	10	19	14
6. Knowledge of the story of Rip Van Winkle	7	9	12	17	8

II. Approach to the unit.

The story of Rip Van Winkle had been told to the children in literature class as a Hallowe'en tale. In music class they learned the song "In Storyland," which tells how "Rip Van Winkle sleeps on." With the knowledge of the story and with the discovery of it in a song, the possibilities of using the story or parts of it in an interpretative rhythm were easily decided by the children.

III. What the teacher hoped would be accomplished. (The central theme governing the unit.)

The story of Rip Van Winkle, which is a classic of children's literature, could be made much more vivid and real in a child's mind through its dramatization and interpretation to music.

Generalizations that might be developed in this unit.

1. Parts of the story of Rip Van Winkle can be dramatized in an interpretative rhythm.
2. Rip Van Winkle is one of many stories which might be dramatized in this manner.

* An example of an actual learning situation developed in the Kalamazoo Public Schools.

3. Gnomes are imaginary characters that are found in the story of Rip Van Winkle and in many other fairy tales.

4. There are distinctions between gnomes and fairies in their appearance, their manner of behavior, and in their general character, i. e. (a) Gnomes are thought of as being homely, while fairies are beautiful; (b) Gnomes are awkward while fairies are graceful; (c) Gnomes are tricky and mischievous while fairies are kind and good.

5. Gnomes and fairies are alike (a) in that they are both imaginary beings; (b) they both have magical powers.

6. It was believed that gnomes guarded the treasures of the earth and so lived in mountains and caves.

7. People at one time and in some places believed that thunder was caused by the mountain gnomes.

IV. The learning situations and pupil experiences.

A. General discussion by the class members as to how to begin work.

The story of Rip Van Winkle was reviewed by one of the children. While the others listened they were keeping in mind any part of the story which they thought could be "played" in the gymnasium. Of course everyone struck upon the idea of bowling as the gnomes played it in the story. The children were very much interested in discovering that the bowling game as they had learned it before in "play class" was the same game the gnomes played in the story.

Along with the idea of having the game it was decided that it would be "fun" to have Rip Van Winkle, himself, appear upon the scene, carrying the keg for the other gnomes. The boys liked to see a trick played on someone so they wanted to play the part of the story of Rip's being put to sleep, then waking twenty years afterward.

B. Specific objectives.

After discussion pupils and teacher set up the following goals:

1. To portray in pantomime the scenes from the story of Rip Van Winkle as follows:
   a. Gnomes on the mountain—bowling.
   b. Entrance of Rip Van Winkle, and the treatment he received at the hands of the gnomes.
   c. The awakening of Rip Van Winkle.
2. To make up and learn a gnome dance to show the merriment of the gnomes at Rip Van Winkle's expense.
3. To choose some selection of music to fit the scenes and the gnome dance.

C. Specific guidance by the teacher.

The interest of the children was centered on the scene of the bowling game. They were anxious to get out the bowling equipment to play a game. Each squad in turn used the balls and bowling pins to show how they believed the gnomes would be bowling when Rip Van Winkle heard them on the mountain. At first, it was difficult for the children to forget they were boys and girls using a familiar

bowling set in a familiar gymnasium. In their imagination they had to turn themselves into these peculiar little people, of whom they had heard, and the gymnasium into a forested mountain side. To aid in this change of personality and viewpoint, a discussion of "gnome appearance" and "gnome behavior" was brought up. The children had seen pictures of gnomes in the literature class and had heard the description of the gnomes in the story. Quoting the boys and girls, these impressions and pictures of gnomes were given:

"Gnomes are fairies."
"Gnomes are one kind of fairy but not the pretty fairies we usually think of."
"Gnomes like to play tricks on people and the other fairies like to help people out of trouble."
"Gnomes are small tiny men."
"Gnomes are very homely."
"Gnomes are out of shape."

This last contribution seemed to need more explanation so Robert, who had made it, went on to say: "In the pictures the gnomes were bow-legged and too fat around the middle."

This evidently was the cue the boys and girls took which developed a real gnome appearance and feeling. There was a puffing out of cheeks, knees sagged out, arms were crooked to get over the imaginary "middles that were too fat." There was also the characteristic gnome expression—merriment in the eyes.

The bowling was tried again; this time with more "gnome-like" appearance, but there was a general feeling of something still lacking or "something wrong with the picture," using John's phrase. In a discussion of what was wrong, John added: "We are thinking so much about looking like gnomes that we are not acting like them. We are too slow." John went on to say, "I saw a movie once, of Rip Van Winkle and in that the gnomes didn't *act* like old men even if they did *look* like old men."

Harold, who is usually ready for an argument, spoke up: "The rest of us haven't seen a movie of Rip Van Winkle so how are we going to know how a gnome acts?"

Although it was too early in the scene to introduce the gnome dance, this was an opportunity which could not be passed by, so the teacher said: "Perhaps we cannot see a movie of gnomes acting, or walking or playing, but we can hear them. Do you know how?"

After some guessing, the answer came, "We can hear them in music."

The next class period, the pianist was there, so the children were prepared to hear gnomes "acting" in music. Several selections of "gnome music" were played for the children to just listen to. They decided, from the suggestions of the music that gnomes must be "quick," "sometimes jerky," and "funny." One selection, the chil-

dren found, sounded as though the gnomes were having "more fun" than in the other music, so they wanted to use that for their gnome dance and the bowling scene. This was "Gnome Dance" by E. Poldini. As the whole scene was worked out it was found that this same music "fitted" the action all the way through up to Rip Van Winkle's awakening, where something more sombre was substituted.

After the music had been chosen, the children listened to it again, this time thinking of the rhythm. As they caught the rhythm they clapped it softly with their hands or tried to fit some step to it. The best steps, i. e., the most "gnome-like" steps, were a quick jerky walk and a step-hop. While the children were trying out these steps, in their own reaction to the music, they assumed, naturally, the "gnome appearance" as it had developed in the bowling game. They concluded the music had helped them find the way for gnomes to move about. It also was "much more fun" being gnomes to music.

The bowling scene was tried again, this time using the music to aid them in keeping the rhythm for the quick walk to be used, and to add to the "gnome mood" of the pantomime. Grouping for the scene as worked out by the boys and girls was as follows:

1. Four gnomes were to be playing the game.
2. Two gnomes were to be "pin boys."
3. One gnome was to stand by the pins and help score for the bowlers. He did this by counting on his fingers and holding up his hand for the others to see how many pins had been knocked down.
4. Grouped behind the "bowling alley" between the pins and the bowlers were the interested spectators who were to pantomime a great deal of hilarity when a good hit was made.

While the game was going on Rip Van Winkle was to make his appearance carrying the keg for the gnome whom he had met while hunting. This was the next part of the scene to be considered. First, a Rip Van Winkle had to be chosen. There were many volunteers to play the part of Rip Van Winkle, so the class had a formal try out. Finally Eugene was elected because in the try-outs he had portrayed Rip Van Winkle's awakening from twenty years of sleep in the most impressive and realistic manner. This had been decided upon as the "try-outs" problem because it was the most difficult.

After Rip Van Winkle entered with the other gnome, the keg he carried was placed in the center of the group. Each one of the gnomes drank from the keg while Rip watched in wonderment and interest. Finally Rip was given a drink too. Then, with very realistic pantomime, Rip staggered, fell and slept soundly. The children had such a thorough knowledge of the story they had no difficulty in portraying this scene.

The gnome dance was to be around the sleeping Rip Van Winkle to show the gnomes' merriment at their own joke. The step-hop which had been tried out to the music was chosen for the dance.

1. The first step as worked out by the children was—all the gnomes circling to the right with a step-hop around Rip Van Winkle until all were back to their places. As the music was not phrased very definitely and there was no variation in tempo, the number of step-hops was merely guided by taking enough steps to get back to their places.

2. Each gnome in turn circled Rip Van Winkle, and back to his place while the others kept their places in the circle.

3. All circled Rip twice, then followed a previously chosen leader from the scene, leaving Rip sleeping on.

Variety in the dance, rather than by many steps and change of formation, was achieved by each gnome pantomiming a great deal of hilarity at Rip's plight. All through the dance, the gnomes laughed, pointed, jeered, scoffed, and mocked Rip Van Winkle.

At the beginning of the dance the music was emphasized by being played a little louder and faster continuing in that manner through the dance.

The awakening of Rip Van Winkle was Eugene's contribution. It was done so well that there was no need for further suggestions. He portrayed a stiff, ragged old man who could not understand the change in himself. To help Eugene, the pianist improvised a low minor melody which added greatly to the effect produced.

When the Rhythm was added to the program for Book Week, the 5-B boys of the class were chosen by the others to be the gnomes and Rip Van Winkle because: (1) "Boys should be gnomes and girls should be fairies"; (2) "Eugene is in that class and he should be Rip for the program so let's have the other boys in the class be the gnomes"; (3) "The 5-B boys seemed to enter into the spirit of the dance so well."

V. Pupil and teacher appraisement of the unit.

After the "Scenes from Rip Van Winkle" had been staged as part of the Book Week program, in discussion the children said these things:

"Are there any more gnome dances we can learn?"
"May we do some scenes from Aladdin's Lamp?"
"I know another good story—'Alibabi and the Forty Thieves.' "
"We had a good time doing Rip Van Winkle."
"Didn't you think Eugene was the best thing on the program as Rip Van Winkle?"
"How everyone laughed when Walter danced around Rip Van Winkle!"
"I really like to do dances like the gnome dance."

The joy and pleasure which the children felt while producing the "Scenes from Rip Van Winkle" were evident all the way through. A deeper appreciation of the story and of "gnome music" could not be avoided with this experience.

VI. Cooperation between home and school.

The parents came to see the program at P.T.A. meeting. Mothers

aided in dressing the children for their parts. In another unit of this kind, if it were suggested, probably pictures and music would be brought in from the homes.

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V. DANCING FOR BOYS*

INTRODUCTORY STATEMENT

This section of the report on Dancing in Elementary Schools is offered with a full appreciation of the fact that very little has been "settled or determined" regarding the question of dancing for boys during those years when it is usual to offer boys a separate program of activity.

It is to be regretted that time did not permit of a really thorough study of the experiments now in progress in teaching dancing to boys. One is led to believe that in many places attempts are being made to give the boy an opportunity to experience this activity.

Some aspects of the question have been left untouched: The question of "method" in dancing for boys deserves consideration. To forecast the possible or probable place of dancing in the boys' program would call for a real study of the work now going on with men in teacher training groups and a study of the work of those men who may have had the opportunity in recent years to participate in dancing suitable for boys' groups.

We should like to see a survey initiated which would include not only the study of dancing for the boy of the elementary school but which would include also a study of dancing for boys of the senior high school and for college men.

We wish to thank the following people who so kindly answered a very brief questionnaire on some phases of the report:

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The discussion will be limited to the problem of dancing for the boy in the upper grades since it is usually customary to provide separate programs of physical education for boys and girls during these years.

PRESENT PRACTICE

Programs of physical education planned for boys, except in rare instances, give no recognition to dancing while the programs for girls emphasize dance forms. Out-of-door activities, self-testing activities, and games and sports placing emphasis upon rivalry and competition, predominate in the boys' physical education program.

Tradition and custom have determined the content of the present day programs for boys. It was natural and proper that those who planned the first programs for boys in segregated groups should give primary consideration to the most characteristic and decided interests of the boys at this period, striving to offer activities which had in the past carried meaning and significance for groups of boys. It was natural, too, that activities which had failed to win response from the boys, activities which had developed no desire for further participation, should be omitted.

The boy at this period in his development welcomes activity which carries a real challenge to his physical powers. He is eager for opportunities to prove his physical fitness and ability. He strives to win the admiration of other boys. He is anxious to "break records." Vigor, strength, endurance, and agility are of paramount interest to him. His heroes are the stars of the athletic field, the leaders of the world of games and sports. His world is a man's world.

The content of the first programs planned for boys has proved successful in furnishing the boy with activities in which he has found happiness and satisfaction. He has had ample opportunity for strenuous physical activity, for participation in games and sports. Recognition of the success of these first programs has led those following to use them as guides and patterns in organizing later programs. The emphasis is still upon competitive forms of activity.

INTEREST

The omission of dancing from the boys' program is very frequently accounted for by such statements as: "Boys think dancing is effeminate, sissy, and only for girls," or "After the fifth or sixth grade the boy loses all interest in dancing," or "Between the ages of

twelve and sixteen any interest in dancing is apt to be a forced interest."

The boy has quite properly come to regard dancing as an activity for girls since his own program fails to include it and the girls' program accords it such an important place. He does not suddenly and naturally develop a dislike for dancing. Certain types of dancing carry no appeal for him and programs organized for him have failed to offer him opportunities to participate in other types of dancing. He has had little chance to experiment and to discover for himself whether dancing has anything of interest or pleasure to offer him.

The suggestion that dancing is a forced interest after the sixth grade is doubtless based upon the boys' reaction to the types of dancing offered to mixed groups during that period when dancing was just beginning to seek a place in the program of physical education. Suitable dance material was limited, teachers had received narrow, inadequate preparation for teaching the activity, and dancing was still looked upon as an "extra, a frill, and a furbelow." The limited folk dance material and the artificial movements of the aesthetic dancing met with scant interest among the boys. Boys who were ready and eager for strenuous activity, freedom of movement, and material which would offer a real challenge to all powers *did* have to force an interest in dancing.

Dancing has surely and steadily been justifying its place in the program of physical education activities. It has come to be viewed as an activity with unique contributions to make in a system of education which is looked upon as "an opportunity for enrichment of life, for development of appreciation and attitudes that will make for happiness, that beholds in all legitimate means of education ways by which human personality is unfolded."[1]

The program for boys cannot be considered broad and balanced while dancing is entirely omitted. The boy should be given experience in many and varied types of dancing. He must have equal oportunity with the girl to gain those values which dancing has to offer. He must have an opportunity to judge for himself the possibilities which this activity holds for happy, interesting experiences.

SPECIAL OBJECTIVES

Dancing which clearly and definitely requires the development of specific physical traits will have meaning for the boy. He will more quickly see the possibilities in the activity if those physical abilities which he so greatly admires are called into play; physical skills which he so eagerly pursues through long, arduous hours of practice in his desire to excel in other physical education activities.

[1] Williams, Jesse F., "Principles of Physical Education." W. B. Saunders Co.

Dances selected should call for real physiologic work, for the use of large, free bodily movements. There should be clear and appreciable challenge for the boys' physical powers. Those dances that demand the development of balance, strength, and control will appeal to the boy. He will understand and respect an activity which puts a real value upon agility, readiness and endurance. There is no place in the boys' dance for "tricky," minute steps and patterns. He is interested in stunts calling for physical ability and skill and will enjoy dances which include these elements.

The performance of the dance may well demand precision and accuracy and stress form in execution. He will understand the value of these requirements since he has appreciated the value of form and perfection of movement in the techniques required in many games and sports. Definite, clearly defined movements should characterize the dances for the boys' program.

The development of rhythmically coordinated movements assuring effective action with the least expenditure of energy may find a place among the objectives which the boy himself will understand. He knows the meaning and the value, in terms of practical results, of achieving a rhythm in swimming; of striking a rhythm, or "finding his stride" in running.

Power of relaxation is seldom set up as a specific objective in any other part of the boys' program. Tense and strained positions and movements are too often characteristic of the requirements in the self-testing and competitive activities. Dancing may well be required to supply this objective.

Improved posture, ease and grace of movement, physical poise, and ability to respond to music are among the objectives for all dancing. These may reasonably be assured as by-products of participation in dance forms which offer interest and meaning to the boy.

Such obviously physical objectives are important but are neither final nor sufficient in determining the selection of dances for boys. Other activities in the boys' program may be said to meet most of these. There must be consideration of objectives beyond the physical ones. The dance which is "barren intellectually," which fails to stimulate the imagination, and which offers no opportunity for the development of creative expression can never be counted upon to encourage the development of lasting interest.

The typical physical education program offered to boys is usually lacking in activities which encourage and develop powers of dramatic and artistic expression. The dance must be viewed as a means of freeing the individual, a means of helping him to achieve his highest levels of expression. Mere physical ability to execute accurately a certain number of steps will not satisfy for any length of time.

The ideas, thoughts, and feelings embodied in the dance must be

within the boys' power of comprehension and appreciation. They must fall within the field of his mental and emotional experiences. They must relate to interests and experiences of his everyday life or must correlate with material encountered in other subjects in his school curriculum. They must never fall below the level of his intellectual understanding. Perhaps nothing kills interest more quickly than a demand that the ideas to be expressed be those more properly suited to younger children. Ideas concerning things outside of his field of interest or savoring too distinctly of "girls' dancing" will create a dislike for all dancing. The dances must call for objective and not subjective expression. Dances which offer opportunity for creating, interpreting, and expressing thoughts and feelings within his power to appreciate and to express will command his respect and interest.

The inhibitions of awkwardness will disappear as the boy develops ease of movement, freedom of expression, and a sense of self-confidence. He will find in suitable dances opportunities for developing mental poise and assurance; for deepening and refining his emotional life. Few of the other activities in his program encourage the development of these qualities.

Dancing should assist in the social adjustment of the boy by preparing him to participate with a degree of ease and ability in the social and recreational forms of dancing in later school and adult life. This is not a plea that the boy be taught the current, popular forms of social dancing while in the elementary school but a suggestion that opportunity for experiencing acceptable dances while in school will provide him with some attitudes and standards toward wholesome social dancing later. The boy "is cut off from too much of the wholesome and happy joy of the world who is not prepared to join other young people in dancing.... They (dances) make the awkward less awkward and are a means of bringing boys and girls, and young men and young women together in happy, hearty, wholesome activity . . . There is need of just such social fluidifiers with young people."[3]

Appreciations, attitudes, and knowledges concerning dancing and related arts must be gained. The boy should learn of the important place dancing has held in the education of the boys and young men of other times and other places. He must be helped to develop an artistic appreciation of dancing, and to acquire some knowledge of the artists and leaders in this field.

A keener appreciation of the form and meaning of good music should be one of the desired objectives. The development of the kinesthetic sense of music should bring new meanings and interests into his home and school music studies. Music selected for use in the boys'

[3] Moore, E. C., In the introduction written for "Folk Dances for Boys and Girls," by Mary Effie Shambaugh.

dancing must aid in deepening the mood or character of the interpretation; it must encourage finer expression, and heighten the value of the work.

Participation in the dance episodes and interludes of pageants and other large-group performances will provide opportunities for significant social experiences and will aid in developing finer standards of appreciation for artistic programs. Dancing for boys must be so motivated and planned for that it may lead to a cultural appreciation of this form of artistic expression, and to an interest in wholesome, satisfying, and joy-producing forms of recreation.

SPECIAL MATERIALS

No arbitrary statement of suitable types of dancing can be made. Many factors will need to be given consideration in the selection of dances suitable for any particular group of boys. There is the question of chronological age and of mental age, of physical ability and of previous experience in dancing. The standards, traditions, and interests of the home and the community will play a part in the decision. The predominating nationality will call for recognition. The space available, the character of the floor, the costume and shoes to be worn, and the possibility of securing adequate music will influence the selection. Finally, the interests of the group in school and out of school will demand recognition. There may be need also to investigate the desirability and the possibility of correlating the work in dancing with other subjects in the curriculum.

One group may stand in special need of social training and the need to develop finer standards of appreciation for wholesome, recreative forms of dancing. Another group may need help in gaining better posture and greater ease of movement. While a third group with a broader background of experience in other forms of rhythmic activities may be quite ready for and interested in the study of dances offering special opportunities for creative and dramatic expression.

The individual is to be regarded as an integrated being, and consideration must be given to the development of all aspects of his personality. Dances which furnish physical, mental, and emotional stimulation will prove most reliable and acceptable. The boy should be given opportunities to experience a variety of types of dancing and to experiment so that he may discover for himself the possibilities for exercise, enjoyment, relaxation, and satisfaction which this form of activity may hold for him.

Folk and National Dances

There is an almost inexhaustible fund of fine, authentic folk dance material. The strong, vigorous dances of the men of other countries will please the boy. He will find satisfaction and joy in energetic

dances with definite, accurate steps and patterns. The trade dances of the men of foreign countries will interest him. The "German Hoop Makers Dance" is one of this group. Dances with interesting stories concerning their origin and use will be enjoyed. "The Swedish Oxendans" is usually fully appreciated when the boy learns that it was originally arranged for the freshmen to dance before the sophomores. The sword dances of many countries will have an appeal, and the vigorous flings, reels and jigs. English Morris Dances, in reality dances for men, will give him pleasure as well as opportunity for real physical work. Polish and Russian dances, if not too intricate in step and pattern, provide spirited, lively activity.

Clog, Athletic, and Character Dances

Character dances are here included with clogs and athletic dances since the usual character dance for the boy has many of the elements found in the other two.

The boy generally finds joy and pleasure, and tremendous satisfaction in the practice and execution of these dances. The movements are large body movements and strength, control, and good balance are demanded. A certain degree of precision and accurate adherence to form is necessary. The stunt quality and the usual emphasis upon the humorous and comic interpretations satisfy him. "A sense of rhythm and a grace of carriage are acquired as by-products" as a result of the practice of this happy form of dancing.

Practice in clogging and in the study of athletic dances should not be limited to the acquisition of mere "routines." There must be opportunity for characterization and interpretation. The dances must be built around stories or ideas. The boy should be encouraged to create acceptable clog, athletic, and character dances.

Natural Dances

Natural dances to be of interest to the typical boy at this period of his life when he is decidedly practical and materialistic must be of vigorous and dramatic content. Probably the best results will be achieved when these dances are sufficiently motivated as necessary parts in the development of the themes and stories of pageants and festivals.

Social Dances

Social dancing is not to be taught to the boy in the elementary schools. It is listed here for brief consideration. Experience in dancing should continue through all the years of the elementary school if the boy is to develop fine attitudes and appreciations for "the wholesome and artistic forms of dancing used for recreative purposes by society."[3] His dance experiences should help him through

[3] Neilsen & Van Hagen, "Physical Education for Elementary Schools," A. S. Barnes & Co.

participation in fine folk dances, strong in social values, to acquire standards with regard to the music, the performance, and the etiquette of social dancing.

SEPARATE INSTRUCTION

In view of the present tendency to provide separate programs of physical education for the boys and the girls of the upper grades of the elementary school, and to have women lead the girls in their activities and men instruct the boys, it would seem more practical from an administrative angle to have the instruction in dancing for boys in these grades carried on in separate groups with men teachers.

There is variety of opinion regarding the various aspects of the question of separate instruction in dancing. It is rather generally agreed that mixed groups under women teachers are most advisable for the first four grades. Many would continue teaching dancing to boys and girls together through the fifth grade, others feel it should continue through the sixth, and occasionally some one voices the opinion that the boys and girls should be given all dance instruction all the years of the elementary school in mixed groups.

The mixed group does give opportunity for the teaching of desirable social relations and courtesy. It does narrow contacts for children when they are taught in segregated groups. But the interests of the boys and girls are decidedly different during the later years of the elementary school period. Separate instruction would give opportunity for each group to enjoy and to practice more freely the particular type of dancing which seemed to carry greatest satisfaction for the group. Boys would probably develop attitudes of appreciation and respect for dancing in general if given an opportunity in segregated groups to stress the more vigorous, energetic, definitely objective type of dance. Perhaps they might more easily and with greater interest enter into dance activities if the girls were not doing the same type of dance at the same ti ne. The girls in mixed groups are usually prevented from enjoying any experience in the free, natural, lyric type of dancing which they find of particular interest at this time.

The *ideal* organization would seem to be that which provided instruction for boys in separate groups, for girls in separate groups, and in addition, gave some time to mixed groups in which boys and girls together might enjoy certain clog, character, and folk dances offering distinct social values.

The question of whether the instructor for the boys' dancing should be a woman or a man is an important one. Mr. Elmer D. Mitchell voices the opinion of many others when he writes, "The man instructor is not necessary although I do think it is much more advisable since the boys' classes in physical education in the junior

and senior high schools are largely handled by men teachers. It would give more emphasis to the dancing if it were a part of the regular program. If any special instruction were needed for programs, I think the woman instructor could well assist with the training of the boys....No doubt for a number of years to come women instructors will be the more skilled, and for the mixed groups and special preparation needed for program events the woman instructor will get more proficient results."

The amount of dancing taught to boys of the elementary schools by men at the present time seems negligible. Many of the successful dance classes for boys are now conducted by women teachers who have had experience with mixed groups. It would seem desirable to have men teach the boys' dancing. The boy who must receive all his dance experience in classes conducted by women is given encouragement to continue his feeling that dancing is essentially effeminate.

The need for men teachers trained in dancing is being considered by many of the teacher training institutions. Courses in clog, tap, and folk dancing are appearing in the programs for the men. Here and there men are receiving dance instruction in the classes offered to the women students.

The leaders must have adequate professional training; they must have education in the principles, the values and the possibilities of this activity. Not only must they know the joy which comes from participation in satisfying forms of dancing but they must have broad understanding and knowledge of this phase of the program. The teacher training groups have a very important and definite problem in this question of the need to offer education in dancing to the men who are to administer the boys' program of physical education.

CONCLUSION

Consideration of the question of dancing for the boys of the upper grades of the elementary school brings up the need for "continual experimentation and trial of suitable material for the development of method both in the technical handling of the activity and the building of socially useful concomitant learnings."[4]

There is a limited amount of experimentation going on at the present time. Dancing is almost always given some place in the programs of physical education planned for mixed groups; in many schools the woman instructor is devoting a little time to classes of boys; and some programs offer clog dance clubs for the boys who wish to dance. But there is need for interested men and women working together to initiate and to develop dancing as a part of the boys' program.

The American boy's love of activity and his delight in finished

[4] Williams, Jesse F., "Principles of Physical Education." W. B. Saunders Co.

performance promises splendid returns to those who will attempt to make up for the lack in his present program by giving him an opportunity to see for himself whether dancing holds anything worthwhile for him; by giving him an opportunity, as the girl has been given an opportunity, to develop a cultural appreciation of rhythmic activity and to develop a form of expression which may prove an interesting, satisfying form of recreation.

VI. TRAINING THE MAJOR STUDENT FOR DANCING IN ELEMENTARY SCHOOLS*

GENERAL BACKGROUND

We are assuming that training for the professional student in physical education is given as one part of the entire training course, and not as a special unit. We may, then, take for granted that the course will include such general and professional courses as English literature, history, psychology, principles of education, and sociology. Since the teaching of dancing demands a general and not a specialized approach to these basic courses we may suppose that this aspect of the young teacher's preparation is assured.

GENERAL SURVEY OF FOUR YEARS' WORK IN DANCING

We may further assume that the work in dancing in any major department will include the accepted types of dancing: folk and national, clogging and character, rhythm and natural dancing.

a. Elementary folk dancing, first or second year; two semester hours.
b. Intermediate folk dancing, second or third year; two semester hours.
c. Clog and character dancing, second or third year; two semester hours.
d. Methods and problems, third year, singing games, folk dances, elementary rhythms; two semester hours.
e. Festival production, elective, third year; two semester hours.
f. Rhythms and natural dancing, third and fourth years; four semester hours.
g. Theory and methods of rhythms and natural dancing; one semester hour.
h. Practice teaching under supervision, including the various types of dancing in elementary schools, fourth year; two or four semester hours.

RHYTHMIC SENSE AS A PRE-REQUISITE FOR PROFESSIONAL STUDENTS

The director of any professional department has a definite responsibility in setting standards of eligibility for his professional students. This is an important factor in physical education. If the student lacks motor ability, keen intelligence, positive qualities of leadership, and an exact sense of rhythm, it is doubtful that he will

* This section was prepared by Mary C. Coleman and her associates, Aldace Fitzwalter, Minna M. Lauter, and Ruth Sims Norton.

succeed as a teacher of physical education. The adviser should assist such a student to find some other type of work in which he may attain a fair degree of success. It is manifestly unfair to the student to allow him to expend time and money on a professional course for which he is totally unfitted. The arrhythmic student is especially handicapped and one phase of our teacher training should be a rhythm-training and testing course, given early in his professional school years, so that the student who shows a total lack of response to rhythms may be given assistance or advice which best suits his case. We have found that evaluation of the student's response to rhythm comes best from tests in free rhythms (walking, hopping, skipping, etc.) followed by the use of these fundamental steps in a simple folk dance, and later by work on dance forms such as the polka, schottische, etc.

FIRST YEAR FOLK DANCING

The rhythm-testing course is to be followed by a semester's work which will combine rhythm fundamentals and simple folk dances. The content of such a course may be somewhat as follows: natural or free rhythms, fundamental dance steps, simple folk dances, including a study of national characteristics. Although another section of this report is devoted to a discussion of method, we should like to repeat that in all dance courses emphasis should be placed on a study and appreciation of the music used in order that the student may learn to recognize and respond to music of different moods, patterns, time signatures, and phrases. In every instance, the individual "step" is given to the various forms of music, and used, so far as possible, in different class formations and incorporated in a folk dance. A few examples of this are given below:

Typical Lesson Forms

Step	*Formations*	*Dance used*
Running.	Alone, with partner.	Norwegian Mountain March.
2/4; 4/4; 6/8.	Accenting run.	
Selection of form best for children.	Run and turn.	All Black Brothers.
	Ceremonial.	Vineyard Frolic.
Marches	Military.	Captain Jinks.
4/4; 2/4; 6/8.	Funeral.	Swedish Ring.
Differentiation for children and adult.	Festival.	Strasak.
	Free polka.	Tantoli.
Polka	Heel-toe polka.	Bummel Schottische.
2/4.	Singly; couples; Forward; backward; Forward and backward; Turn.	Swedish Klapdans, etc.

It is helpful if note-books, indicating the historical backgrounds, costumes and national characteristics are kept throughout the course.

Suggested List of Dances, First Year

Suggested list for first semester's work

American Country Dances
Bleking
Captain Jinks
Come Let us be Joyful.
Cshbogar.
Dutch Couples.
Crested Hen.
Dancing Bear.
Halling.
How do you do.
Highland Schottische.
Gustaf's Skoal.
Irish Long Dance.
Jibidi-Jibida.
Kinderpolka.
Klap Dance.
Norwegian Mountain March.
Noriu Miego.
Pop Goes the Weasel.
Rovenacka.
Rhinelander.
Ribbon Dance.
Seven Jumps.
Skobodanser.
Swedish Ring.
Six Hand Reel.
Tantoli.
Tarantella.
Virginia Reel.
Wooden Shoes.
Yankee Doodle.

The same general plan, with more advanced dances, is carried on into the second semester's work. In each case the historical background, the costume, and the national characteristics are emphasized, with all possible coordination with literature and other forms of art.

A suggested list of material for this semester is appended but the difficulty of the material will have to be adjusted to the capacities of the class.

Second-year course in Folk Dancing

American Square Dance.
Amaryllis Gavotte.
Butcher's Dance.
Birdie in the Center.
Bean Setting.
Black Nag.
Bridge of Athlone.
Csardas.
Cracoviak.
Fairy Reel.
Frykdalspolska.
Gathering Peascods.
Half Moon.
Highland Fling.
Irish Lilt.
Kamarinskaia.
Kolomaika.
Little Man in a Fix.
Lovely Wullka.
Minuet.
Morris.
Sailors Hornpipe.
Slovak Dance.
Sellinger's Round.
Sorrentina.
Suktinus.
Sword Dance.
Sweet Kate.
Tatra.
Treman Polka.
Tripoli.
Zorongo.
Varsovienne.

Clogging, Tap Dancing, and Athletic Dancing

The semester offered in clogging and character dancing is purely a content course; the use of this material and the teaching methods will be taken up in the succeeding course in Methods and Curriculum Building, and accompanied by analysis of structure in the class on Rhythmic Form and Analysis. It is believed that this type of dancing

(clogging and tap) presents, aside from its content values for the teacher, an especial contribution in its exactness of coordination and rhythmic response.

Clogs

Billy Magee.
Dixie.
Reuben Taps.
Yankee Doodle.
Rig-a-Jig.
Sleigh Bells.
Boxing clog.
Sambo.
Jack Frost.

Athletic Dances

Arkansas Travelers.
Topsy.
Skidmore Medley.
Pirates.

Waltz Clog

Clementine-Tap.
Original Clogs.

In the Junior year, a two-hour course is suggested on Methods and Curriculum Building. This course will include lectures and practice (the dance being taught by members of the class to their own group), and will study singing games, free rhythms as used in elementary classes, athletic and "character" dances, and classifications of dances of various nations in order of difficulty. A partial outline of the suggested course follows:

Criteria for judging lesson:[1]

A. Spirit
   1. Is the dancing natural and joyous, free from artificiality?
   2. Is the dance taught—not steps?
   3. Are the dances reviewed often enough to fix them in the minds of the children?
   4. Are the movements in the animal rhythms true to life?
   5. Does the teacher give the folk dance in its proper setting?
      a. Nationality.
      b. Characteristics of people as to costumes.
      c. Characteristics of the dancing of this nation.
   6. Is the emphasis on spirit or on technique?
   7. Are children allowed opportunity to select dances for repetition?

B. Music.
   1. Is the music adapted to the children's understanding?
   2. Is it appropriate for the activity used?
   3. Is it presented in musical phrases?
   4. Is the correct folk music used?
   5. Is the singing in the games executed in accordance with principles of the music department?

C. Technique.
   1. Are steps correctly analyzed and presented?
   2. Is the unity of the dance retained by linking each step with the new steps previously learned?
   3. Is the use of the arms taught after the steps have been mastered?
   4. Is emphasis placed on lightness and poise?
   5. Are the recognized objectives for this activity positively secured?

[1] Adapted by A. Fitzwalter from La Salle, Dorothy, "Play Activities for Elementary Schools." New York, A. S. Barnes and Co.

Progression.

A. With relation to basic skills.
B. With relation to formations.
C. With relation to apperception of meaning underlying the dance.
D. Development, if more complex, from basic skills.

Singing Games.

Curriculum Building.

A. Evaluation and classification made by:
   1. Nationality.
   2. Difficulty.
   3. Variety of interest.
   4. Correlation with problems of the special grade or group.

Special Problems.

A. Dancing for boys.
   1. Athletic and character dancing.
   2. Folk Dancing: Morris, Sword, Hornpipe, Reel sets.
   3. Clogs and Jigs.
B. Selections for boys and girls of upper grades together.
C. Selections for recreative purposes.
D. Court Dances.
E. Ceremonial Dances (where the ceremony and not the dance is emphasized).
F. Pantomimic rhythms.
   1. Choice of music.
   2. Choice of activity.
G. National Dances.

RHYTHMICS OR NATURAL DANCES

Classes in Rhythmics are included in the curriculum for professional students of physical education to establish habits of muscular guidance and control, to develop more complete and intelligent use of the body mechanics according to the laws of kinesiology; and to cultivate a love and appreciation of beauty, to stimulate imagination, and to deepen and refine emotional life and thus broaden social capacity.

At first only simple, natural movements of the parts of the body are experienced, discussed and analyzed. Later they are combined into harmonious combinations using the body as a whole. A fund of simple to complex movements is built up, accompanied by appropriate music. The class has the opportunity, at times, to listen to music and from appreciation of it to select the type of movement suitable.* The dance as an art is studied, accompanied by comparison with other arts and their analysis as to tools, medium, means and purposes.

In the last half of the junior year a class in Rhythmic Form and Analysis should be given in order that students may have a complete and analytical knowledge of step-patterns that are used in dancing of all types. Such a class may start with all the simple combinations of

* Children's rhythms are included in the content of material.

one, two, three and four part patterns in terms of relative time values. To each of these, various step patterns are fitted using all possible fundamental steps, the one part combinations being the walk, run, leap, hop and jump; and the two-part, the skip, slide and gallop. These are combined, tried and their degree of difficulty, appropriateness and type of movement discussed. The tom-tom may be used for accompaniment, or a good musician may compose impromptu. Most of the well-known established step patterns—the polka, the schottische, the waltz, the gavotte, minuet steps, and the like—are analyzed as to relative time value, step pattern, type of movement, and appropriate music and are each related to the underlying beat of the music.

Such a study as described above will enable the student to work out and to interpret for herself the difficulties of a dance.

In the first half of the fourth or senior year a more complex vocabulary of movement is worked out and dances done in previous recitals are studied. In the last half of the senior year, programs suitable for class work with the various age groups are worked out by each individual and discussed in class. Then finally, program work in the dance is taken up and each individual constructs a program for his probable situation, one of these being selected to be worked out by the class.

In the senior year also a collateral review of the psychology of the different age groups accompanies an adaptation of rhythmics to these age groups.

UNITY OF THE FOUR-YEAR WORK

The foregoing paragraphs have indicated briefly and incompletely a suggested course for four-year students, preparatory to teaching dancing in elementary schools. This preparation has necessarily been given in individual courses, often under a number of different teachers, but with the effort made throughout to preserve a continuity of interest and a relatedness of material. In the practice teaching under supervision, done in the final year, these various types of activities are fused into the elementary school curriculum. The material in rhythms and dances acquired during the past three years is to be evaluated in the light of the immediate situation and taught in response to the children's interests and needs. It is especially hoped that the student teachers will have an opportunity to see these dances "function" as a factor in the solution of some social or dramatic or historical problem.

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VII. THE PREPARATION OF THE GENERAL ELEMENTARY SCHOOL TEACHER FOR THE TEACHING OF DANCING*

I. Assumptions Regarding the Purpose, Aim and Future of Teacher Training

It has been found by experienced administrators that training an intending teacher in content and method has not always made a successful teacher. Teaching requires the development of those qualities which go to make up personality in its broadest interpretation.

To the door of the teacher training institutions the intending teacher brings a composite of school and home training that has covered a period of from twelve to eighteen years. This training, together with community influences such as church, street, theater, and the like, have been the sources from which he has acquired his habits, attitudes and skills.

The teacher training institutions should at once endeavor to find out the needs, gaps, strengths, and weaknesses in each novice's development and attempt in the two, three, or four years to assist the individual in overcoming his deficiencies and in developing his natural capabilities. This development of personality is possible only in those schools where more than two years of training are required. The trend is toward increasing the number of years required for the training of elementary school teachers and many states have already changed the requirements from two years of training to three or even four years.

II. The Development of Dancing in Teacher Training Institutions

With the recognition of physical education as an integral part of education, there has come a greater emphasis upon adequately training the elementary school teacher in this phase of education.

* This section was prepared by Kathleen Skalley Davis.

In the past, teacher training institutions were negligent in training the student teacher in the various phases of physical education activities. This was due to the fact that physical education was classed as a special subject and was not included in the minimum essentials of the school curriculum. Since it was so catalogued it was understood to have "special content" and "special methods" and therefore not the function of the general elementary school teacher.

Dancing, as one phase of physical education, has suffered because of this "special" emphasis and it has only been with the recognition by educators of the values inherent in dancing that it has attained in any way its deserving position in the curriculum of the elementary schools. In addition to the recognition of the values of dancing it should be realized that the principles used in the teaching of this subject are primarily the same as for all subjects in the elementary curriculum. These values will be used and found accruing only in those cases where teaching principles are applied by an understanding, appreciative, well-trained teacher.

III. Reasons for the Need of Training Teachers in Dancing

Since another section of this report deals with the objectives of dancing, it is not the purpose of this section to justify the inclusion of dancing in a teacher training curriculum. The same values and principles that apply to the teaching of dancing to children are likewise applicable to teachers preparing to teach children.

IV. Teacher Training in Dancing

1. Training the novice teacher.
   a. The first year of training.

      Developing the point made above that teacher training should begin with a thorough understanding of the individual, giving to him those experiences which will aid in his harmonious development, it is obvious that one of the experiences which should be offered to him is participation in dancing for his own enjoyment, development and recreation. This, together with the aim of preparing him adequately to teach dancing to children, is the primary purpose underlying all classes in dancing in a teacher training institution.

      To understand the abilities, deficiencies, needs, and possibilities of these students in dancing it will be necessary at the outset to give tests in rhythmic responses. At the time of this writing tests and scales are being devised for the measurement of rhythm. If an individual is non-rhythmic at normal school entrance it does not always mean that he could not have been rhythmic if his training had

been constructive. In most individuals this ability has never been recognized because it has been denied the opportunity of expression at the outset. We must find out just what stage his development has reached and use this as our beginning. With these older individuals not as much will be accomplished as with a six or eight year old child. However, the fact that *something* can be accomplished is of importance.

In dealing with these individuals lacking a rhythmic sense by far the most important point to develop is a favorable attitude of mind. Attitudes which greatly influence the development of right habits and skills are:

1. That dancing be enjoyed;
2. That it is possible and desirable for everyone to dance;
3. That everyone can dance with freedom and without constraint.

To establish these attitudes it will be necessary to deal with each individual and to teach persons instead of the subject. Dancing means little to those students who have never enjoyed opportunities for rhythmic expression. Therefore, dancing must be taught to them in much the same way that we believe it should be taught to children with the emphasis upon the children taught and not upon the subject matter of dancing.

For such individuals as those described above, it is recommended that a course in "Fundamentals of Rhythmic Expression," be required the entire first year, two or three times weekly. This course should be taught with the viewpoint of aiding in the development of the prospective teacher as an integrated personality.

The courses herein described might well be given as a hyphenated course, two days the first semester given to natural dancing, one day given to national and folk dancing. The second semester two days given to national and folk dancing and one day to natural dancing. This combined course might be known as "Fundamentals of Dancing."

Simultaneously, a course should be given in national and folk dancing for we find that many of the fundamentals such as walking, running, skipping, hopping and leaping, are the same. It is recommended that these two courses be more closely tied together than has been the custom in the past. In general the objectives for both are

the same (1) to create an enjoyment of dancing so that it may be taught more frequently and more convincingly, (2) to develop group consciousness in the individual, (3) to improve rhythmic skills. *Specifically* there are a few objectives that apply to each separately such as for national and folk: to develop a sympathetic understanding and appreciation of the customs of folk peoples. For natural dancing: to develop imagination and creative powers.

To those students found at the outset to possess skill and ability in rhythmic activities, a more advanced course than the one described above should be given. The fundamental principles should be the same as those underlying the above course, but the material studied should be more difficult.

b. The second year of training.

The required course the second year should be one in "Rhythms and Dancing for Children." In this course it is assumed that all second year students have had or are taking a general education course in the principles of teaching. Since the principles of teaching are the same regardless of the subject one of the objectives in this course will be to apply these principles to dancing. It is also assumed that a course in child psychology has been or is being studied. Therefore, the material studied in child psychology will be integrated in this dancing course, especially in grading the material to be given to children. In this course opportunity will be given for observation in the training school (the elementary school of the teachers college or normal school) of the teaching of rhythmical activities to children of the various ages and grades.

c. The third year of training.

During the third year opportunity should be given to all students to do practice teaching in the training school. Included in this practice teaching should be opportunities to teach dancing. Supervision of this practice teaching should be given by the regular supervisors of student teaching with the physical education teacher acting as adviser or expert consultant.

d. The training school.

It is of vital importance that a progressive program of physical education (including rhythms and dancing) be carried on in the training school.

e. Correlation with other subjects.

Since there is a section of this report dealing with correlation of dancing with other subjects of the curriculum it need only be mentioned here that such correlation as suggested should be carried out in the training school. This is done in order that the novice teacher observe the articulation of the various phases of the curriculum.

In the Normal School itself, an example of articulation is given when the music department offers to all students a much needed course in music for physical education. An elementary course in art primarily concerned with customs should be offered by the art department.

Projects initiated in the dancing classes should enlist the cooperation of the industrial arts, home economics, dramatic, literature, art and others.

2. The training of the teacher in service.

In the normal school this group is made up of those teachers who attend summer schools and extension courses. These are the teachers who register in dancing courses for the following reasons: (1) they are interested in it per se, (2) they wish to keep abreast of the times, (3) their executive officers request it, (4) they know little about it because it was not a part of their original public school training nor of their normal school training.

Since dancing has been one of the omissions in the past experience of these teachers it must be presented to them now in such a manner that satisfaction and enjoyment from participation will accrue. Both the method and the content should be strictly compatible with the make up of the class. The method will be individual, the content simple and conducive to spontaneous participation.

Usually during summer sessions and extension courses, time is the chief element. For this reason it becomes necessary to present this course from two viewpoints: (1) for the benefit of the individual herself, and (2) to aid her in the teaching of dancing to children. It might be suggested that much of the materials of the rhythmic work for small children is very usable as a means of approach in securing joyous response from this teacher group.

VIII. PROBLEMS FOR FURTHER STUDY

1. More scientific study of objectives (especially the social objectives) than this Committee has been able to do because of the limitation of time.
2. A study of children's interests in dancing.
3. Further experimentation in dancing for boys.
4. The preparation of the teacher.
5. Standardized terminology.

Three Research Studies in Physical Education

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I. A Curve for Devising Scoring Tables in Physical Education

As far back as 1921 McCloy[1] suggested the logic of devising our athletic scoring tables by means of the parabolic curve ($Y=AX^2$) and pointed out the fact that "for an athlete to increase his speed from running a hundred yards in 10 seconds to running a hundred yards in 9-4/5 seconds was worth more in points than to increase his speed from 20 seconds to 19-4/5 seconds." Using the same sort of reasoning, it would be logical to assume that, with practically all athletic events, it becomes increasingly hard to better one's performance as the individual approaches the limit of human possibilities in that event.

The purpose of this study is to show, if possible, that the curve of improvement in a variety of events is of a parabolic nature and to outline curve improvement equations for these events.

Accordingly, data were collected on the improvement made by men in six track and field events during the course of a semester of practice and instruction. Data used cover a period of five years and include over 700 individuals. The events are:

1. 100 yard Dash.
2. 120 yard Low Hurdles.
3. Half-mile Run.
4. Running Broad Jump.
5. 12 lb. Shot Put.
6. Discus Throw.

Tests in these events were given to men before and after practice and instruction and scores noted. By making a scattergram of each event and plotting beginning scores against those made after practice and instruction, average increases of performance at each distribution interval can be readily obtained. Distribution intervals used together with mean and standard deviation of beginning performance are as follows:

[1] McCloy, C. H., A Statistical and Mathematical Method of Devising Athletic Scoring Tables, Am. Phys. Educ. Rev., January, 1921, pp. 1-12.

		Mean	S.D.
100 yard Dash	2/10 of a second	12.61s	.708s
120 yard Low Hurdles	4/10 of a second	18.355s	1.555s
Half-mile Run	3 seconds	2:49.4	13.87s
Running Broad Jump	5 inches	14'-4.6"	19.5"
12 lb. Shot Put	9 inches	28.75'	3.92'
Discus Throw	2½ feet	60.86'	12.70'

Cumulative average increases were then computed for each event starting from the bottom of the distribution. When these were plotted on graph paper a smooth curve could readily be drawn through the points and the data showed very conclusively that the average increase in performance becomes less and less as the performance becomes better. From the smoothed curves improvement values were computed at five points of the distribution in terms of the standard deviation of the distribution in question. These are unequal for the very simple reason that some distributions have a wider range in terms of standard deviation than others. Distributions were plotted on the Y-axis and improvements on the X-axis.

TABLE I

Computations for Curves in Terms of Improvement in S. D. Values at various S. D. Points

Events	S.D. Points				
	-2σ	-1σ	M	$+1\sigma$	$+2\sigma$
100 yards	5.51	9.46	12.40	14.70	16.40
120 yd. Low Hurdles	13.50	18.65	22.20	24.60	26.00
Half-mile	9.42	15.94	20.70	23.85	25.60
Running Broad Jump	7.15	12.57	16.20	19.15	20.90
12 lb. Shot	1.45	5.32	8.00	10.00	11.35
Discus	7.18	16.06	22.55	27.40	30.70

By subtracting certain amounts from the values at the S.D. points in the six events, we can obtain a common starting point at -2σ and the values of all S.D. points in all events will be comparable.

TABLE II

Table I Reduced to Comparable Values on Basis of the Shot Put

Event	S. D. Points on Distribution				
	-2σ	-1σ	M	$+1\sigma$	$+2\sigma$
100 yards	1.45	5.40	8.34	10.64	12.34
120 yard L. H.	1.45	6.60	10.15	12.55	13.95
Half-mile	1.45	7.97	12.73	15.88	17.63
Running Broad Jump	1.45	6.87	10.50	13.45	15.20
12-lb. Shot	1.45	5.32	8.00	10.00	11.35
Discus	1.45	10.33	16.82	21.67	24.97
Average or Composite	1.45	7.08	10.93	14.03	15.90

In constructing a composite curve representing all these events we know that the rises on the Y-axis are all equal relatively, being

standard deviation distances, and that the improvement values represented on the X-axis become less and less as we go from —2 sigma to +2 sigma. Therefore, the curve in its upper ranges goes up sharper than in its lower performance levels. This is as it should be, and, the point values for equal intervals of performance in the upper ranges will be increasingly more than in the lower ranges. Since the range of performance shown is four standard deviations, that is, from —2 sigma to +2 sigma, let us now divide the base-line or X-axis into four equal parts, representing the four standard deviations of performance. Extending the curve downward until it becomes tangent to a baseline, we can then get a good idea of the relative rise in graph spaces at the five points on this theoretical baseline. (See Figure I.)

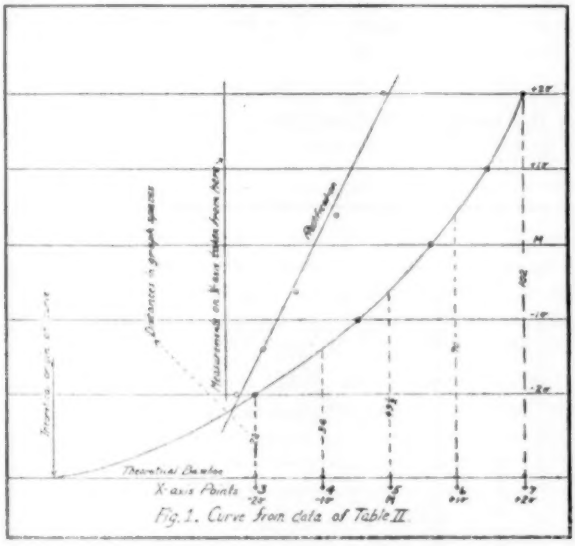

Fig. 1. Curve from data of Table II.

It is well known that a performance level of five standard deviations below the mean is practically a zero performance for any individual in a given distribution. Now, if we are to construct a curve, the units of which will be relatively the same in any instance, we must use comparable units on the baseline. Such units can be standard deviations. If the performance level of minus five sigma is the zero point, the "minus two sigma level" will be point 3, the "minus one sigma level" point 4, etc. Using the method of rectification[2] for free hand curves we find that the curve equation is $Y=2X^2$.

To substantiate the proof of the equation for the curve, let us try several other methods. By going back to the original distribu-

[2] See Holzinger, K. J., Statistical Methods for Students in Education. Ginn and Co., pp. 323-324.

tions of average improvement increases it is possible to compute average increases around sigma values of the distribution above and below the mean. Table III shows such computations in terms of the S. D. of each distribution.

TABLE III

Showing Averaged Increases at Sigma Values Above and Below the Mean in Terms of the S. D. of the Distribution

Event	S. D. Points				
	-2σ	-1σ	M	$+1\sigma$	$+2\sigma$
100 yards	1.27	.984	.692	.495	.460
120 yard L. H.	1.58	1.160	.710	.527	.328
Half-mile	1.59	1.310	.825	.507	.305
Running Broad Jump	1.72	1.065	.840	.575	.418
12-lb. Shot	.72	.640	.450	.360	.350
Discus	1.84	1.460	1.210	.825	.490
Composite	1.45	1.10	.79	.55	.39

Figure 2 represents the curve drawn from the composite of Table III. Using the method of rectification on this curve, the equation is $Y=3.5+1.97X^3$.

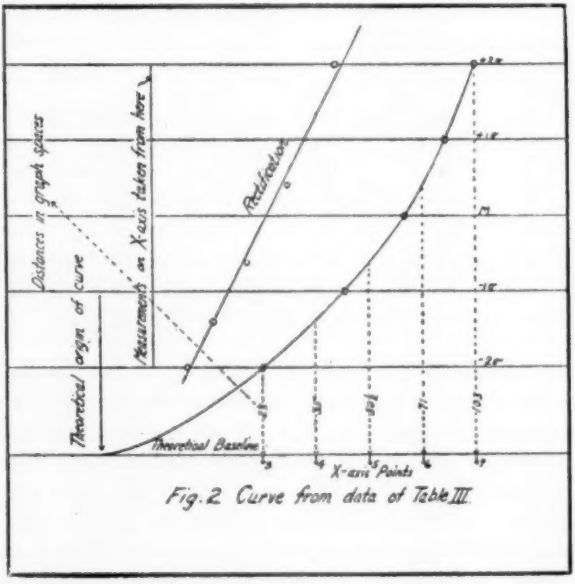

Fig. 2 Curve from data of Table III

A second method offered as proof of the curve equation will be the computation of cumulative increases in improvement from the upper levels of performance down. Table IV represents such computations from the smoothed curves of each graph.

TABLE IV

Cumulative Improvement Measures for Each Event Computed from Upper Level Down in Terms of the S. D. of each Distribution

Event	S. D. Points				
	$+2\sigma$	$+1\sigma$	M	-1σ	-2σ
100 yards	1.060	2.825	5.16	8.33	12.70
120 yard L. H.	.663	2.185	4.76	8.68	14.15
Half-mile	.288	2.305	5.55	10.82	17.90
Running Broad Jump	1.540	3.745	6.85	10.92	16.45
12-lb. Shot	1.020	2.310	4.54	7.39	11.73
Discus	2.600	6.260	11.34	18.19	26.45

From Table IV we can obtain differences in S. D. value between two consecutive points on the curve. Since the ratio of differences in any curve is constant, we can reduce all measures to comparable terms by dividing all differences in such a way that the difference from —2 sigma to —1 sigma is one. Thus the difference in improvement in the discus throw between the levels of one and two sigma below the mean is 8.26 standard deviations. Likewise, the difference in improvement between one and two sigmas above the mean is only 3.66. Obviously, it is more difficult to make the improvement in the upper ranges and a logical view of the situation should enable us to say that improvement between +2 sigma and +1 sigma is worth $\frac{8.26}{3.66}$ or 2.26 times as much as between —2 sigma and —1 sigma. Table V is built on this assumption.

The composite curve for Table V should be set up in such a way that the values indicated are layed off from a point on the baseline midway between the two S. D. points. Figure 3 shows the curve, the equation for which is $Y=2.15X^2-4.4$. It must be kept in mind that the same technique of extending the curve into the lower ranges (that is, below —2 sigma) was used as in constructing Figure 1.

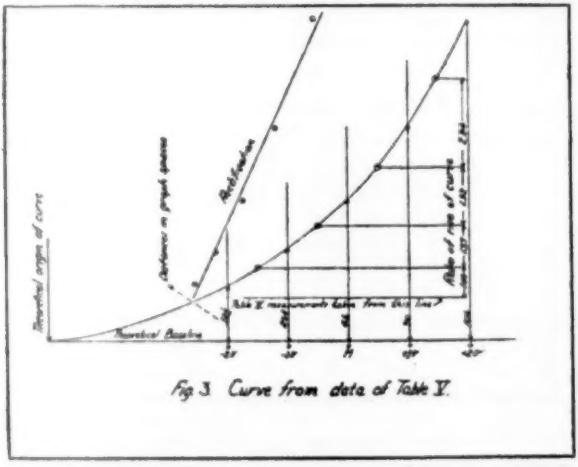

Fig. 3 Curve from data of Table V.

TABLE V

Showing Ratio of Rise of Curve Between Various S. D. Points in Distribution

Event	$+1\sigma$ and $+2\sigma$	$+1\sigma$ and M	M and -1σ	-1σ and -2σ
100 yards	2.48	1.87	1.38	1
120 yard L. H.	3.53	2.12	1.395	1
Half-mile	3.51	2.18	1.34	1
Running Broad Jump	2.51	1.78	1.36	1
12-lb. Shot	3.36	1.95	1.52	1
Discus	2.26	1.63	1.21	1
Composite	2.94	1.92	1.37	1

A third method of showing the equation of the curve of improvement offers itself. If we go to the original curves of each distribution, the proportionate rise in graph spaces on the Y-axis between S. D. points in the distribution can be obtained.

To make these comparable they should be reduced to unit measures. This has been done in Table VI.

TABLE VI

Showing Proportionate Rise in Graph Spaces on the Original Improvement Curves between S. D. Points

Events	-2σ to -1σ	-1σ to M	M to $+1\sigma$	$+1\sigma$ to $+2\sigma$
100 yards	.364	.273	.208	.156
120 yard L. H.	.415	.277	.181	.128
Half-mile	.402	.295	.187	.116
Running Broad Jump	.389	.267	.205	.139
12-lb. Shot	.388	.276	.207	.129
Discus	.361	.278	.216	.144
Composite	.387	.278	.201	.135

Using equal intervals on the Y-axis in laying out the composite, we have the equation of Figure 4 as $Y=1.94X^3$.

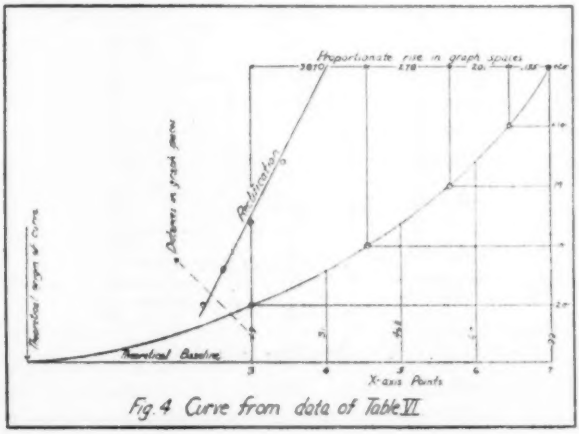

Fig. 4 Curve from data of Table VI

A final method of checking the curve equation was used. Taking the original improvement curve of each event and using the same technique with regard to a theoretical baseline as was used in Figure 1, we can then obtain a ratio of graph spaces in a vertical direction from each of the five S. D. points set on this baseline. These distances will naturally be arranged in such a manner that the distance at +2 sigma equals 1.0. Table VII indicates these computations. The curve equation for the composite, Figure 5, is $Y=2+1.94X^3$.

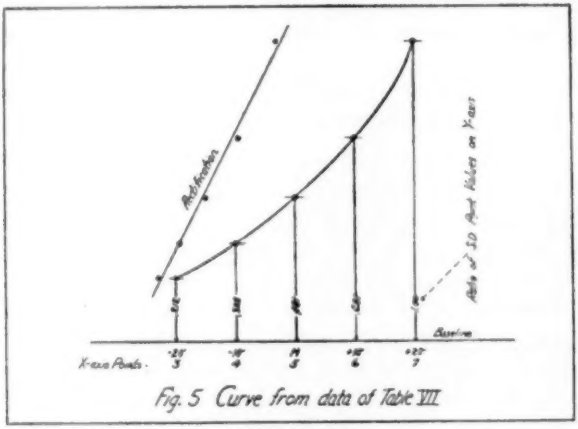

Fig. 5 Curve from data of Table VII

TABLE VII

Showing Ratio of S.D. Point Values on Y-axis Computed from Graph Spaces on Original Improvement Curves

Events	-2σ	-1σ	M	$+1\sigma$	$+2\sigma$
100 yards	.260	.375	.531	.729	1.00
120 yard L. H.	.355	.446	.561	.727	1.00
Half-mile	.214	.322	.464	.650	1.00
Running Broad Jump	.153	.274	.442	.663	1.00
12-lb. Shot	.132	.264	.430	.645	1.00
Discus	.157	.289	.459	.673	1.00
Composite	.212	.328	.481	.681	1.00

From the ratios indicated in Table VII, it is very simple to compute the equations for the curves of each event. These are as follows:

100 yard Dash	$-Y=8.3+1.83X^3$
120 yard Low Hurdles	$-Y=18.5+1.60X^3$
Half-mile Run	$-Y=1.4+1.91X^3$
Running Broad Jump	$-Y=2.06X^3-5$
12-lb. Shot Put	$-Y=2.12X^3-8$
Discus	$-Y=2.06X^3-4$

We now have equations of five composite curves for comparison:

Fig. 1	$Y=2X^3$
Fig. 2	$Y=3.5+1.97X^3$
Fig. 3	$Y=2.15X^3-4.4$
Fig. 4	$Y=1.94X^3$
Fig. 5	$Y=2+1.94X^3$

The easiest and best choice among these is $Y=2X^3$. The reason for a composite curve is simply that it would be administratively impractical to compute the equation for each event used in a scoring table and the events listed represent a fair sample of those contained in many scoring schemes of a decathlon nature.

The use of the equation should be briefly explained. If, as has been pointed out, improvement is easier to make in the lower ranges of performance and becomes increasingly hard to make as we go up the scale, we should reward equal performance increments with an increasingly larger number of points as the top of the scale is approached.

In laying out a curve by which to determine point values for any event, the following procedure should be used:

1. Find the mean and standard deviation of the distribution.
2. Lay off the baseline of a piece of graph paper in such a way that values in terms of the units of the distribution will be easy to read and yet so that a range of at least 3 standard deviations on each side of the mean may be obtained.[3]
3. Compute S. D. points at —1 sigma, —2 sigma, —3 sigma, +1 sigma, +2 sigma, +3 sigma, etc., and set these on the baseline since they are to be used for the units on the X-axis.
4. As the theoretical start of the curve, use the point at 5 sigma below the mean. The X and Y values will then be as follows:

Sigma distance	When X equals	$Y=2X^3$
—5	0	0
—4	1	2
—3	2	8
—2	3	18
—1	4	32
M	5	50
+1	6	72
+2	7	98
+3	8	128
+4	9	162
+5	10	200

Units on the Y-axis may be taken as the small divisions on the graph paper. After locating the points, draw through them a smooth curve. The units on the Y-axis can also be used as point values.

5. Scoring may start at any point selected. This point depends entirely on how many individuals should fail to score. If the point selected for example, is the performance level at 2½ sigma below the mean, erect a perpendicular at this point and score no per-

[3] Students may be interested in the discussion of this point in Bovard, J. F., and Cozens, F. W., Tests and Measurements in Physical Education, W. B. Saunders Co., pp. 219-225.

formance below it. However, the performance at 2½ sigma below the mean may be so located as to be rewarded by as many as 13 points.

6. For any performance on the baseline, point values can readily be determined by noting where the Y-axis for that performance cuts the curve. On account of the construction of the curve, it should also be observed that equivalent performances in different events will be rewarded by equal point values. Point values should always be read from the original baseline to preserve the curve construction ratio.

Summary

By means of data showing the improvement of men during a specified period in six track and field events, a composite curve equation has been devised which best fits the data of all events. This equation was found to be $Y=2X^3$. The equation was checked by several methods and, while there is some slight variance in the equations obtained, in general, all equations conform to the one selected as best fitting the data. Inaccuracies in reading the graph paper scale will account for much of the variance.

Equations for the several events have also been computed. These show a range on each side of the composite which is, of course, logical.

Directions for the use of the curve equation ($Y=2X^3$) in devising scoring tables have also been outlined.

II. A Comparative Study of Two Methods of Teaching Class Work in Track and Field Events

SOME experimental work has been carried on in the field of psychology relative to the length and distribution of practice periods involving motor training of one sort or another.[1] In the field of physical education, however, little data bearing on these questions are available, especially as they relate to problems involving the training of the big-muscle groups.

It is the purpose of this study to show the relative effectiveness of two types of training in certain track and field events. Experimental evidence was collected in regularly organized class work in track and field events carried on entirely out-of-doors. No effort was made to equate the groups before the experiment began and weather conditions were disregarded as well they may be in Southern California.

[1] Gates, Arthur I., Psychology for Students of Education, pp. 285-288. Williams, J. F., Principles of Physical Education, pp. 147-151.

Experimental Groups

Group I. Freshmen in college in eight of the writer's classes: four during the spring semester of 1927 and four during the fall semester of 1927.

Group II. Freshmen in college in eight of the writer's classes: four during the spring semester of 1928 and four during the fall semester of 1928.[2]

Type of Work

After a number of years of experimentation with various combinations of events and with careful consideration for the element of time, it has seemed most expedient to limit instruction to six events. These are the 100 yard dash, the 120 yard low hurdles (five hurdles spaced at twenty yards), the half-mile run, the running broad jump, the 12 lb. shot put, and the discus throw. Here we have a combination of events which can be taught and practiced in groups and which represent a fair sampling of the events on the average track and field program—a dash, an endurance run, a jump, a hurdle race, and two weight events using different implements.

Teaching Method I

All men were tested in all six events during the first three class periods of the semester and their scores recorded.

The remainder of the semester was then divided into six equal periods of practice and instruction and the same amount of time allowed for each. On account of the factor of administration in the practice of events, classes were divided into two sections for practice. The broad jump and shot put were grouped together as were also the discus throw and the low hurdles. In the dash and endurance run, the entire class took part at one time.

At the conclusion of the definite period of time set aside for instruction and practice in each event, a test was given in that event. In such events as the broad jump, shot put, and discus throw, the best of three trials after a warm-up period was allowed.

This method may be called the *concentrated teaching method,* in which each event is taken in turn, allowing for variation in arm and leg work, and instruction and practice given only in that event for the specific period in question. Since the men knew that they were to be given the semester grade on the basis of their final performance, it is assumed that they did their best.

Teaching Method II

The same technique in the testing period before instruction and practice was observed. The same class divisions for the broad jump,

[2] The selection of the groups was dependent only on the limit of the amount of class work in track and field events offered for that semester. Each class group numbered between 20 and 30 men and in all there were more men in Group II than in Group I. In some cases complete data for an event were not available. These cases were disregarded for that event.

shot put, 120 yard low hurdles, and discus throw, were made as in Method I. In the other two events, the entire class took part at one time. In the endurance run, after the first period of instruction, practice took place with a varied distance running program for three minutes at the end of each 30 minute practice period. With the class meeting twice each week for a semester and taking into consideration the testing periods, about two full hours of instruction are all that can be allowed for any event.

The events in Method II were rotated throughout the semester according to a given schedule which took into consideration arm and leg work. In other words, the study consists in the evaluation of a method where four (plus) practice periods occur in sequence as against a method where the same number of practice periods were scattered throughout the semester. In each method the semester

TABLE I

Showing Means, Standard Deviations and Standard Error of Means for the Two Methods

	Method I			Method II		
	Mean	S.D.	S. E. of M.	Mean	S.D.	S. E. of M.
100 yd. Dash—Seconds						
Before practice	12.524	.647	.048	12.683	.744	.050
After practice	12.213	.615	.046	12.204	.734	.050
Actual difference	.311			.479		
120 yd. Low Hurdles—Seconds						
Before practice	17.956	1.358	.109	18.392	1.636	.112
After practice	17.089	1.256	.102	17.121	1.320	.091
Actual difference	.867			1.271		
Half-mile Run—Min. and Secs.						
Before practice	2:44.04	10.14	.852	2:49.59	13.80	.959
After practice	2:36.84	9.93	.834	2:35.45	12.25	.851
Actual difference	7.20s			14.14s		
Broad Jump—Ft. and In.						
Before practice	14-10.30	16.10″	1.24	14-2.27	22.15″	1.51
After practice	15-10.15	18.45″	1.42	15-9.59	20.75″	1.41
Actual difference	11.85″			19.32″		
12-lb. Shot Put—Ft. and In.						
Before practice	29-5.15	43.70″	3.03	28-7.34	46.75″	3.16
After practice	30-8.59	41.25″	2.86	30-7.24	48.20″	3.26
Actual difference	1-3.44			1-11.90		
Discus Throw—Feet						
Before practice	65.08	12.85′	.956	61.25	12.60′	.910
After practice	77.17	11.73′	.872	75.12	13.46′	.972
Actual difference	12.09			13.87		

grade was given on the basis of final performance, not on the improvement shown. There is every reason to believe that the men did their best in the preliminary as well as the final testing period.

A glance at Table I shows us that, in each event with the exception of the discus throw, there is a very substantial increase of improvement by Method II over Method I. Just how reliable this increase is we cannot say until further computations have been made. Further, the fact that the Group II is lower than Group I in mean performance at the beginning of the training period may have some bearing upon the increased improvement which it shows. Such a study is reserved for the future and may follow shortly.

Data at hand can be formulated into improvement distributions for Methods I and II and from these we can obtain the computations of Table II. If it can be shown in each event, by the use of the standard error of difference formula, that the actual difference in improvement divided by its standard error is three or more, then we can say with some assurance that Method II is superior to Method I.

TABLE II

Showing Computations from Improvement Charts in each Event

	Method I			Method II			S.E. of Diff.	Diff. divided by its S.E.
	Mean	S.D.	S.E. of Mean	Mean	S.D.	S.E. of Mean		
100 yd. Dash (Secs.)	.311	.390	.0288	.479	.511	.0346	.045	3.73
120 yd. L. H. (Secs.)	.867	.713	.0573	1.271	.995	.0682	.089	4.53
Half-Mile Run (Secs.)	7.20	7.26	.607	14.14	9.63	.669	.903	7.68
Broad Jump (Inches)	11.85	12.25	.943	19.32	16.40	1.115	1.460	5.12
Shot Put (Inches)	15.44	24.21	1.680	23.90	25.77	1.740	2.420	3.50
Discus Throw (Feet)	12.09	8.65	.643	13.87	10.10	.730	.973	1.83

A glance at Table II will show us that the improvement by Method II (the rotation teaching method) over Method I (the concentrated teaching method) is reliable in all cases except in the discus throw.

Just why the discus throw should not show the same advantages of Method II over Method I as the other events can only be guessed. One guess is that to most men in the two groups this event is absolutely new. The vast majority of these men had never had a discus in their hands before entering the class. As a consequence, there is a very rapid gain in improvement immediately after instruction, but,

because of the extreme technique involved in throwing with a turn, future improvement is slow.

An interesting corollary to this study may be made to show the *relative* amount of improvement in each event. By comparing the improvement in each event with the variability of that event, we will then have comparisons which can be put on a relative basis. Standard deviation has been used as a measure comparable relatively in each event. Table III shows the computations.

TABLE III

Showing a Comparison of the Improvement in Each Event by the Two Methods in Terms of Standard Deviation

	Percent of S.D. Before Practice		Net Advantage
	Method I	Method II	of Method II
100 yd. Dash	48.1	64.4	16.3
120 yd. Low Hurdles	63.8	77.7	13.9
Half-Mile Run	71.0	102.5	31.5
Running Broad Jump	73.6	87.3	13.7
12 lb. Shot Put	35.4	51.1	15.7
Discus Throw	94.1	110.0	15.9

Table III shows that the greatest relative gain in improvement is made in the discus throw and that the greatest net advantage of Method II over Method I occurs in the Half-mile Run. This advantage checks with the reliability computation shown in Table II.

Summary

Evidence has been offered to show that, with certain types of track and field events, improvement is more marked when the practice periods are spread over a considerable period of time rather than concentrated. This might lead to the conclusion that, for track athletes, three practice periods per week of one hour each, spread over the entire year, is a better schedule than practice periods of one hour per day six days a week for one semester. Most track coaches advocate fall training, probably for this reason.

The evidence presented is not as conclusive as it would have been if the experimental groups had been equal in average ability at the start of the training period.

The greatest relative improvement was made in the discus throw, probably because of the fact that most of the men had never before attempted this event.

The greatest net improvement of Method II over Method I was shown to be in the Half-mile Run. The short but frequent practice periods must have been of great advantage here. Apparently, short but frequent training periods for runs involving endurance show great advantage over the same amount of time spent in long infrequent periods.

III. An Age-Height-Weight Table for Entering College Men

IN research involving age, height, and weight, it is quite often desirable to have a measure of the variability of the weight of a given age-group at a given height. Measures of this sort are not available in the ordinary age-height-weight tables.*

Table II shows not only the average weight for a given inch of height at a given age, but also shows us how that weight varies. Between the limits of one probable error on each side of the mean is contained 50 per cent of the cases in a normal distribution. Thus we may expect to find that 50 per cent of entering college men who are 5′6″ high and who are 17 years of age weigh between 121 and 141 pounds.

TABLE I

Showing the Number of Men Involved in the Computations

	Age										
Ht.	16 & Under	17	18	19	20	21	22	23	24	25 & Over	Totals
6-6					1					1	2
6-5		1	1								2
6-4	1	4	4	4	3	3	3				22
6-3	1	6	14	14	5	6			1	1	48
6-2	2	16	32	33	19	17	10	4	7	4	144
6-1	5	29	60	63	41	27	15	12	4	4	260
6-0	6	56	150	105	67	43	28	10	16	14	495
5-11	12	80	197	188	132	71	43	25	16	19	783
5-10	11	121	267	201	157	85	64	26	19	32	983
5-9	28	158	306	253	168	92	54	38	24	50	1171
5-8	29	128	309	232	162	111	52	26	25	37	1111
5-7	31	128	239	180	133	92	45	25	14	33	920
5-6	28	74	169	131	94	70	34	13	8	22	643
5-5	11	53	89	82	44	34	19	14	12	15	373
5-4	11	26	63	41	28	11	17	7	7	8	219
5-3	4	15	34	14	13	12	6	5	2	9	114
5-2	2	8	13	10	3	4	4	4	3	10	61
5-1		4	1	4	1	2	5	2	2	2	23
5-0			3		1				2	2	8
4-11		1	2		1				1		5
4-10	1										1
4-9											0
4-8					1						1
Totals	183	908	1953	1555	1074	680	399	211	163	263	7389

* The material for this article has been collected over a period of twelve years and may be helpful to students who are engaged on problems involving age, height, and weight.

Table I shows the number of cases involved in the computations at each inch of height for each age and Table III is an attempt to devise a more usable table by plotting the data on coordinate paper and taking weight figures from a "best-fit" line for each age.

It should be remembered that figures in these tables represent "stripped" height and weight which makes them from four to ten pounds lower than Life Insurance Tables.

TABLE II

Age—Height—Weight Table

For Entering College Men

Note: Height and weight without clothing—compiled from 7389 cases, University of California at Los Angeles. Weight listed =Mean; just below it is listed the P. E. Between the limits of the Mean ± 1 P. E. is included 50% of the cases.

Ht.	16 Yrs. & under	17 Yrs.	18 Yrs.	19 Yrs.	20 Yrs.	21 Yrs.	22 Yrs.	23 Yrs.	24 Yrs.	25 Yrs. & over
			166	160						
6- 3			6.9	9.1						
		157	163	162	159	160	169			
6- 2		7.6	11.0	11.7	7.6	6.2	14.8			
		154	157	156	153	161	160	160		
6- 1		11.1	10.8	9.7	10.5	10.3	9.5	13.5		
		153	150	151	156	156	157	152	153	157
6- 0		11.2	10.9	8.8	13.4	12.6	14.5	6.8	11.4	12.5
	155	151	146	148	149	152	150	152	150	158
5-11	15.6	9.9	9.6	10.1	9.5	10.1	9.1	9.0	9.4	13.9
	142	142	143	145	147	150	145	148	149	156
5-10	6.8	9.1	9.5	10.1	10.0	10.0	9.4	11.2	9.8	13.6
	130	138	141	142	143	143	144	146	151	152
5- 9	6.3	8.4	10.7	9.2	9.7	10.6	7.7	8.4	9.3	13.5
	139	136	136	139	139	142	142	140	142	145
5- 8	9.8	8.6	8.6	9.7	8.9	10.4	9.6	7.0	8.3	11.3
	134	130	134	135	134	138	136	133	141	142
5- 7	9.8	8.7	8.8	7.7	8.4	10.2	8.0	8.5	7.6	13.5
	127	131	130	130	133	135	132	136	123	139
5- 6	6.6	10.0	8.5	9.3	8.9	8.4	8.3	5.6	4.0	11.3
	117	124	128	127	128	128	130	122	132	127
5- 5	8.2	9.5	9.4	8.4	8.1	10.4	8.0	11.1	8.5	7.7
	119	120	125	127	122	127	124			127
5- 4	9.3	10.8	9.8	8.3	6.9	6.3	7.8			7.4
		121	118	114	121	123				116
5- 3		8.7	8.8	7.9	5.7	10.3				6.8
			117	119						115
5- 2			8.1	8.9						7.1

TABLE III

Age—Height—Weight Table

For Entering College Men

Computed by use of best-fit line for weight at each inch of height

Ht.	16 & Under	17	18	19	Years 20	21	22	23	24	25 & Over
6-4	164	168	170	170	172	173	172	172	176	179
6-3	160	164	166	166	168	169	168	168	172	174
6-2	156	160	162	162	164	165	164	164	168	170
6-1	153	156	158	158	160	161	160	160	164	166
6-0	149	152	154	154	156	157	156	156	160	162
5-11	144	148	150	150	152	153	152	152	156	158
5-10	140	144	146	146	148	149	148	148	152	154
5-9	136	140	142	142	144	145	144	144	148	150
5-8	133	136	138	138	140	141	140	140	144	146
5-7	129	132	134	134	136	137	136	136	140	142
5-6	125	128	130	130	132	133	132	132	136	138
5-5	120	124	126	126	128	129	128	128	132	134
5-4	117	120	122	122	124	125	124	124	128	130
5-3	113	115	118	118	120	121	120	120	124	126
5-2	109	111	114	114	116	117	116	116	120	121
5-1	105	107	110	110	112	113	112	112	116	118
5-0	101	103	106	106	108	109	108	107	111	113

Phylogenetic Backgrounds of Physical Education

By John Eisele Davis, M.A.

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IN the study of the comparative processes of work and play, one is impressed, in the first place, with an apparent fundamental difference in the ease with which these activities are produced. Play activities are more natural, more spontaneous, less subject to environmental disturbance, the attentive processes are more easily activated and maintained, associations more spontaneously and strongly formed, the volitional sphere is often stimulated to an unusual degree, and the affective states aroused in a surprising exercise of emotional acts and inhibitions. When one attempts a study of the situation, he finds that the play activity comprehends a wide field of conduct complicated by many variables of reaction making it most difficult to discover definite characteristics. It is not the purpose of this article to review, in extenso, the various theories which seek to explain the phenomena of play, as interesting as this aspect of the subject undoubtedly is, but to attempt to discover some of the backgrounds of the play process, some of the basic conditioners of this most entrancing play response activity.

As has been indicated, one of the characteristics of the play activity, as compared with work, is the relatively greater ease with which it is produced. Stanley Hall infers repeatedly in his psychological approach to the problem that the difference is to be found in the phylon; he repeatedly calls attention to the necessity of conceiving of a soul as well as a body of play, and in many ways he stresses the aspect of psychic motivation as a most significant factor.

It is the belief of the writer, arrived at particularly as the result of many years in the administration of physical exercise to the mentally ill, that many primal forms of play as well as the motivation of play activity are phylogenetic in character. In dealing with many regressed psychotic patients who have lost or inhibited most formal training acquired during the life work of the individual as evidenced by the I.Q. test, it has been found that a response to some primal form of play activity may be evoked. It is significant in this connection to note that many of these patients cannot be enlisted in work ventures although after an initial participation is made into some

suitable play activity administered with due reference to the personality and changing physical and mental level of the patient, there may be produced a transfer into the more responsible work activity.

Games in which the competitive aspect is intensely emphasized apparently illustrate a strong phylogenetic basis. Here we have the elemental quality of the game, the crude strength crisis, reflecting the basic struggle of superiority, the struggle for existence and for individual and social survival. The struggle is upon the most primitive level. The tug of war in which the psychotic patients of the lowest grade of regression, even the vegetative level, will voluntarily participate, represents this phylogenetic urge.

The sexual basis for play, elaborated by Freud, who afterward added his repetition-compulsion and pleasure principle theory, undoubtedly has some justifiable phylogenetic explanation. The surplus energy theory, enunciated by Spencer, is seemingly related to this fundamental concept. The wider irradiations of the sex principle appear to afford some explanation of certain play reactions, particularly the urge to show off before the feminine sex, to demonstrate a certain physical process phylogenetically related directly to the struggle to win the object of affection, and remotely to the instinct of survival. It is reported by Hall that Ludwig, the distinguished teacher, often told his pupils that nine-tenths of the psychic processes of adolescents center about sex, if we consider the wide irradiation of the idea. One may perceive a progressively direct sexual relationship from plant life when contact is made through the medium of insects through animal life where the process is directly intersexual. Bright colors, scents, mating noises, the budding of appendages, the manifestation of aggressive qualities and the creation of a mutually plastic relationship to which the feminine sex contributes often through modes of tacit appreciation and poise, provides the stimuli as well as the content of this sexually motivated showing-off process. It is significant to note in this connection that play activities representing, as they do today, the sublimation of many psychic processes, the inhibitions of a machine age, yet contain so many elemental forms of the phylon. What, for example, would a football game amount to without the mass yells, mass music, the element of personal encounter, the riot of color in the stands, the coy admiration and approval of the opposite sex bestowed upon the winner? These aspects provide the sentiment of the game, the spirit of the experience, the vital relationships to the origin in the past, which lives in memory after the grosser aspects have disappeared. The aspects of the play experience which are closely akin to nature, and hence to the phylon, provide the euphoria, the heightened zest, the substantial and lasting pleasure. Hall says in this connection, "Nature is sentiment before it becomes idea, or formula, or utility."

Dewey's comprehensive viewpoint of play relates it to the educative process in these significant words, "We learn by doing." He warns against the attempted suppression of the instinct of play leading to the reactive distortions in the form of "abnormal inert acts or indulgence of the imagination." He denies the doctrine of "Natural Quiescence" and proclaims the generally accepted idea that the human organism is in state of constant activity. The fact of life, he explains, is sufficient to account for the play phenomena. While it appears that this explanation is adequate for motion itself—the active aspect of play—it hardly explains why this activity is directed into the particular distinctive play channel. On the other hand, a stress upon the phylogenetic elements is, in some quarters, considered an avowal of the recapitulation theory which is generally discredited today. There is no doubt but that the student will readily discover that the higher variable play responses in child development do not have exact correlates in the phylon. Ontogeny does not repeat phylogeny in the sense that exact patterns are produced. The writer believes, however, as the result of a detailed study of the reaction of hundreds of psychotic patients over a period of years to a scientifically administered program of physical education, that there is a powerful stream originating from the phylon which not only motivates the participation but conditions the general nature of the play activity. There is undoubtedly a pregnant field of study offered to the student who desires to examine Nature's original contributions to the play phenomena, viewing it generally as the active reflection of the developmental stages of life and particularly from the Socratic viewpoint as a perpetuation of Nature's beauty, nobility and grandeur. That many physical and psychical qualities inbred into polymorphic play are causally related to nature's processes such as the magic wind, the picture gallery of nature, the clouds, the rhythmic trees, animals, nature's artistry of boundless space, land and sea, cannot be doubted although we are unable in many cases to closely define the relationship or to discover the exact correlates in contemporary play. The classic dance probably is our closest approximation to a tangible representation of these phyletic origins. The dance brings physical education into the realm of art and confirms Spencer's experience that the purest form of activity is play and art, which are physically related in that neither are directly conducive to the processes necessary for making a living.

In dealing with psychotic patients, the physical director will find most interesting examples of overt manifestations of these phylogenetic urges developed in play life. In formal calisthenics for example, some patients will show reactive symbolic postures upon hearing the howling of the wind; many patients say they cannot do their best because of the inhibitions coming upon them on cloudy days, all sorts of phobias as the result of closed spaces, open spaces, light,

darkness, colors, water, are developed during play, as well as many sublimations as the result of the presence or absence of particular natural phenomena. In these cases we have abundant opportunity to observe the phyletic correlates of physical education since the experience and formal education acquired during the lifetime of the individual is frequently at a very low ebb and the basic instinctive tendencies crop out. There are, of course, many complicating factors, including delusional and hallucinatory interpositions, which are to be considered.

One of the most striking examples of the powerful instinctive urges to conduct is found in the experiences of many negativistic psychotic patients who are inducted into swimming therapy. Many of these cases have become progressively inactive until their motor field is restricted to the large fundamental processes associated with locomotion. In many cases these patients do not feed themselves, or dress themselves. The cause is generally psychogenic. In addition to the definite economic problem prescribed, there is, of course, the social mal-adjustment and the personal discomfort arising from such a narrow sphere of activity. Many patients of this group being taken to the swimming pool, after a careful check up upon their clinical data, have shown a most remarkable adjustment. One patient walked with a most restricted gait resembling a characteristic hemiplegic condition. He explained that he had a cancer of the hip which prevented him from taking a full step. Upon reaching the edge of the pool, however, he gazes into the water and then makes a most graceful dive, utilizing the leg with the imaginary cancerous condition to its fullest extent and demonstrating a capacity for normal motility of the leg and hip muscles as well as exact coordination of the related segments naturally associated in the exercise of diving and swimming. Another patient who had held his right arm in an unnatural fixed position for two years, due to hysteria, was taken into the swimming pool daily. Each day he would wade a little deeper into the pool until one day, without any apparent provocation, he struck out and commenced to swim. Finding that he could use this segment in the act of swimming, he gradually regained its utilization in other relationships until its normal use was gradually restored. While not directly pertinent to this thesis, it may be of interest to note that many negativistic patients who have had to be tube fed, could not dress themselves, have apparently through some indirect process, but little understood, had these habits restored after experiencing the instinctive activity in the swimming pool.

When we attempt to analyze the contributing factors, primary and secondary, which enter into this reactivating process resulting in a breaking away from negativism, we are confronted with a complicated problem which has been attacked at various lines by psychology and psychiatry. In the first place we must consider the hu-

man organism as a totality. Dr. White says in this connection, "It is no longer sufficient to consider some single aspect of human functioning alone and by itself, it has to be related to the problem of the whole individual, considered from the standpoint of the goal of the individual as a whole, rather than the immediate object of the function. Man is preeminently a social animal and the struggle for existence and for fulfillment has become, more than ever before, a struggle at psychological and social levels; he must then be considered from these standpoints to understand what is taking place." It is the opinion of the writer that in the treatment of these negativistic types, we must seek an indirect approach through the introduction of a parallel stream of conduct which the patient can follow while at the same time giving expression to his irrational thought creations. There may result a fusion of the irrational with the rational leading to the patient's improvement. The phylogenetic urges so plainly discovered in swimming provide the ideal medium for the parallel activity. The patient first wades, and upon reaching deep water instinctively swims, without conscious thought. In these cases the delusional or hallucinatory sphere of the individual is so completely established that he cannot be reactivated into normal channels through the ordinary formal training procedures based upon knowledge acquired during the life time of the individual. We must go farther back into elemental racial experience, instinctive life, the old survival formula. It is difficult to account for such phenomena except as the result of the many primal contributions from the phylon. Some psychologists call attention to the nature of the process of play periodicity and consider the longer rhythm of play as compared to work to be phylogenetic nature closely related to her cyclic processes whereas the short rhythm of work has resulted from the unnatural industrial evolution. There is no doubt but that contemporary education finds most valuable explanatory material in the phyletic series, and "Must decide which of the last should be left to the progressive atrophy now taking place, and which need to be more completely lived out either for their own sake or to furnish the momentum of interest necessary for achieving the next higher stage of life."

Man's "debut as a terrestrial mammal" affords us most significant biological conceptions of phylogenetic backgrounds for physical education. In this connection Dorsey says, "There is nothing in man's arm, from the muscle by which it is fastened to his head, neck and spine, to his finger nails, that does not show modification due to change in function since man left the trees." One does not have to retrace very far to note that the accessory musculature is being called upon by our machine age to accomplish work which was formerly done through larger muscle activity. Increased specializations of the fingers in men, for example, has resulted in the development of the

forearm rather than the biceps, the lower jaw is disappearing because of lessened work due to the evolution in foodstuffs. Civilization is producing a toothless race. Dorsey says, "In hundreds of skulls I collected in New Guinea there was not one imperfect set of teeth, all were strong, sound, beautifully aligned."

Anthropologists are generally agreed that modern man differs from primitive man little, if any, in size, but there is a discernible difference in certain segments: the legs of modern man are longer, body, arms and jaws shorter, head is larger. We cannot conceive of the human body as a changing, adjusting organism both in form and function without its phyletic background. Play representing the whole gamut of life must feel, in its variable expressions, the early racial impressions which have left these physical stamps upon this evolving organism. A study of the genesis of play can not be dissociated from the chemical reactions of the body.

Barker reminds us of the collective operation of the endocrine glands, a subject pregnant with possibilities for all students of physical education. "Our stature, the kinds of faces we have, the length of our arms and legs, the shape of the pelvis, the color and consistency of our integument, the quantity and regional location of our fat, the amount and distribution of hair on our bodies, the tonicity of our muscles, the sound of the voice and the size of the larynx, the emotions to which our 'exterieur' gives expression—all are to a certain extent conditioned by the productivity of our hormonopoietic glands. We are, in a sense, the beneficiaries and the victims of the chemical correlations of our endocrine organs." The reflex arc is considered by many to be the basis of all human behavior. It is apparent that the reflexes are vital components of the play mechanism. It is also evident that a study of the field of reflex activity is about as wide as life itself. This reflex activity brings to contemporary play the contributions from the phylon. The modifications of human behavior because of an organic inferiority have been exhaustively explained by Adler. These personality changes have often resulted from failure to adjust the old behavior patterns to the new and have a vital significance in understanding the genetic nature of true play activity.

It has been the purpose of the writer to suggest some of the many possible elements from which have grown the vital phenomena of many variables-play. Hall states the problem in this way, "The powers of imitation and appropriation are so developed and perhaps hypertrophied that it is impossible to distinguish what comes from indigenous and what from acquired sources. The past and future contend with each other for mastery. In his elegiac moods, youth seems to long for a lost idea in a way that suggests transmigration of a Platonic Wordsworthian type, as plants dream of the sun, and on the

other hand, his aesthetic sensibilities are presentments of a superior stage of the race that will develop out of the present human type, which it is the function of art to prophesy and anticipate."

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Plans and Specifications for Physical and Health Education in the Elementary School

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EDUCATION in the elementary school is most important because of the mere fact of primacy; it comes first. Physical education is simply another aspect of the same social process of change in human behavior usually called education. It is *not* a subject of the curriculum but a fundamental means of education. Its objectives are optimum stimulation through big-muscle activities for response in growth, development and adjustment. Physical education as all education is interested in the human organism as a physico-chemical laboratory in which are taking place the processes of the living and the non-living world with resulting changes in behavior. It champions the biological perspective of education and its activities are effective means of vigorously stimulating the potential growth tendencies present in the organism. The known presence of these growth tendencies leads to the acceptance of four major developmental aims classified by Dr. Hetherington, as follows:

1. Organic development—dependent upon changes in muscular and other tissue substance due to activity.
2. Menti-motor or neuro-muscular development or the ability to make desired voluntary movements as in skilled acts. Dependent upon changes in living nervous tissue due to response to stimulation.
3. Impulsive or emotional development—dependent upon the function of that configuration of glandular and visceral mechanisms which seem to provide "feeling tone" and furnish the driving power for the higher centers which guide and control conduct. One's feelings can be trained.
4. Interpretative development—dependent upon a richness of experience to give "meaning" to one's environment.

How can the teacher draw up a specification chart which considers these developmental aims at each age level for each child? Aims and activities are inseparable for it is by means of the latter that the former are approximated. Here the genetic point of view is imperative.

The child differs from the adult physiologically, psychologically and in the chemical constituents of the body.

An effort is here made to outline the specifications and to give some thought to principles and activities destined to lead us toward the four developmental aims listed above at the various levels of development. They form the bases for the work done at the Demonstration School, Ohio State University. Needless to say, these hold for education in general and for physical education in particular. For division, the following classifications are made:

1. Kindergarten—Primary.
2. Third-Fourth.
3. Fifth-Sixth.

Regardless of any arbitrary classification designed to bring groups that are more or less homogeneous together we must remember that the facts of distribution hold everywhere for everything. Perhaps no two children of the same age have the same degree of development or capacity intellectually, organically, emotionally, or neuromuscularly. Every child is a physiological and psychological law unto himself. In physical education, even with elaborate means of determining present and ultimate capacity, we will be called upon to serve *all* children even as we are called upon to serve all in an academic way today even though we have intelligence tests which purport to measure capacity. We know that the normal distribution curve is characteristic of every trait and capacity known to humans when large groups are considered. This fact brings out, among others, three important imperatives. These are:

1. As far as possible with the means at our disposal we must determine the needs of the individual.
2. We must have a rich and varied program of activities to meet and satisfy the needs of *all* children.
3. We must take particular pains to note these children whose needs do not seem to be met. Since play life makes possible the direct observation of a large variety of fundamental processes, deviations from what we consider normal become readily accessible for experimental understanding and treatment.

The question of individual differences in play activity have not yet been studied in detail, but when we do have scientific light on these differences our contribution to mental hygiene and education will be greatly increased.

I

What Are the Facts Regarding the Organic Development of the Elementary School Child?

Briefly summarized, some of these are: Early childhood the period of greatest physical activity. Nerves of the pyramidal tract

medullated by activity. The brain completes its growth and development follows. Muscular development and coordination are at a low level. Blood plasma is more fluid. Greater activity of lymphoidal tissue; many changes in constituents of blood (these occur at different periods); gradual increase in haemoglobin content; and gradual increase in red blood corpuscles. The child's blood furnishes less protections. It lacks antitoxins. The heart is small in relation to the arteries. The child is unable to endure violent forms of exercise for long periods. Pulse rate is higher in childhood. The rest period of the heart (diastole) is shorter. Low blood pressure and heart small and rate rapid. Metabolism is greater in childhood and temperature higher. Heat loss is more rapid. The child is more active, bringing about stimulation for combustion. The child's sense receptors lack structural development and training. The child's eye is hyperopic up to six years. Tyler points out three stages of growth for every organ in the body:

1. Mere enlargement when exercise is necessary.
2. Growth requiring much exercise for healthy development.
3. Approach to full maturity, when severe training looking toward endurance of strain is possible.

It is important to remember that despite superficial appearance EVERY child has diverse potentialities and capabilities. Democracy as Jennings defines it from this biological standpoint is "the freedom of each individual to develop the peculiarities that are in him." Jennings further sets up for us the main laws of development:

1. There must be a gradual development—natural.
2. There must be an interdependence of the mental and physical, neither superior to the other. In other words: an integrated personality is one where intellectual traits are balanced by proper emotional traits and physical development.
3. There must be attention for proper development. The genetic point of view "First the blade then the ear, etc.—"

The world outside is likewise a factor. We must control the environment for the sake of the child. Dr. Hetherington called this the "protective program." We must protect the child from pathogenic germs and blights and provide proper nutrition and activity, for the body will not attend to food taken without appetite. Proper ventilation and the like must be considered under environmental control. These are all factors which affect organic development.

Given Some Facts Concerning Organic Development at the Various Periods, What Principles Apply at Each Period? What Should the Specifications Call for?

(Viewed primarily from the standpoint of organic development, there will naturally be considerable overlapping in activities in considering each period from the standpoint of the other aims.)

Kindergarten-Primary

Principles. In children from three to seven years of age there is little differentiation between play and reality. Dramatic and social imitative elements are strong. There is great physical activity. Stress should be upon self-expression through spontaneous motor activity which involves large muscles. Neural connections make for manipulation, facial expression, and vocalization; and manifold large bodily movements make for "readiness" and susceptibility to activity involving these neural connections. Restlessness and quick tiring of children at this age indicates a need for plentiful free exercise which is not continued for a LONG time. Provide opportunities demanding coordinations of larger muscle groups rather than strain and endurance. The child should be watched for overstimulation. Optimum stimulation and response is the fundamental law of hygiene.

Activities. Sensory and motor control play is important together with imaginative play with crude constructive work. Place boxes, sand-papering, nailing, sawing and many other muscular activities in an integrated program. Provide garden activities, rhythmic exercises, and singing games; also balance games and exercises, ring games, hunting games, games developing the kinaesthetic sense and related to posture, mimetic exercises, Indian skills—shooting, rowing, running, free play.

Third-Fourth Grades

Principles. In the primary-kindergarten period the child is free to romp and run and gains great satisfaction from the sheer joy of movement. In grades three and four the child plays a game with other children. Games involving elements of chase, daring and teasing are popular. Select games providing short periods of play and sufficient rest when the child desires it. Stress motor activity with the *beginning of skill.* Greater interest in running games is found in the fourth grade perhaps.

Activities. Primitive dances, war dances, fire dances and other ceremonial dances are featured along with building activities—sawing, digging, shoveling, mixing and using cement, etc.

Chasing and fleeing games are popular as are self-testing "stunts," combative stunts of a mild nature, novelty relays, etc.

Fifth-Sixth Grades

Principles. Competition and skill appear as factors in activities which prove of interest but cooperation is still rather primitively developed. This is a period of great physical activity. Boys and girls seem to be gathering energy for an early adolescent growth "spurt." Abundance of energy is evident in great demands for games like "Hill Dill," etc. Games involving running, chasing, hunting are popular. Games involving the antagonistic fighting spirit are popular

with boys. (Example: Bull in the Ring, Cock Fight, etc.) Provide opportunity for daring, courage and skill and lay foundations for games demanding definite rules like End Ball, Swat Ball, etc. Toward the end of the sixth grade period there is a greater growing respect for rules and regulations and formations of groups, gangs and clubs. This opens the way for a more organized program demanding cooperation.

Activities. Physical ability tests (involving track and field events and those involving the elements of major games), self-testing activities, modified baseball, basketball, and soccer, hockey, volleyball, long ball, deck tennis, folk dancing for girls, stunts, swimming stunts and games, hiking and treasure hunts are featured in this grade.

NOTE: Through activities the child should early develop the fundamental health habits in relation to food, drink, sleep and the like. "Ways of living" which take the form of habits of eating, sleeping, and relaxation and elimination, require proper integration of the nervous system which comes about only through optimum stimulation and response in the form of natural activities.

II

What Are the Facts Regarding the Menti-Motor or Neuro-Muscular Development of the Elementary School Child?

Briefly summarized, some of these are: The nervous system is developed out of contact with the external world. Its development is still dependent upon freedom of movement. When the organism moves about, it gains contact with new environments and new and enriched sensory experiences result. Activity should start with the fundamental nerve centers (those controlling the large muscle movements) and proceed to the accessory. Coordination (menti-motor development) means better integration and ability to get into contact with one's environment. The child is not capable of making full adjustments to its environment because its nervous system is not fully developed. In a young child the effector system is readily susceptible to fatigue for the child does not use a variety of effectors. The child's reaction time is slower for the irritability of the nervous system is much less. Glands are not all uniformly developed. Full powers of auto-coidal inhibition and stimulation are lacking. Motor control begins with the larger, older, fundamental muscles, so that fine coordinations cannot be made by young children. SENSE TRAINING SHOULD NEVER BE PUSHED. It should be guided. The ceaseless random activity of babyhood becomes purposive definite action through development of nerve centers.

The child is first concerned only with flinging his arms and legs; in the freedom of movement. Later he gives "meaning" to these

movements by means of the trial and error method. He notes that certain movements bring certain effects; pain or pleasure, a smile from mother or a dark look, a noise, a feeling of hardness or softness. Satisfaction comes through achievement; activity which enables him to control his environment. He is able to remove covers to get what is inside; is able to cry and bring mother; to "be brave" when bumped and receive praise. This "sampling" of his environment leads to certain reactions which, if they bring satisfaction, are repeated and given certain "meaning." This question of perception comes under "interpretative development" and will be discussed there.

Given Some Facts Concerning Menti-Motor Development at the Various Periods, What Principles and Activities Apply at Each Period? What Should the Specifications Call for?

Kindergarten-Primary

Principles. (Quite well covered under the main heading "Menti-motor.") The child at birth is a palencephalic (old brain) organism. At this stage it is unable to adjust adequately to its environment. Integration is at a low level. The child should not be "pushed" and expected to exhibit behavior beyond the development of its nervous system. The process of integration goes on from the lower to the higher level and development of the lower level is dependent upon the development of the higher level. (Edinger and Fischer's study of the decerebrate child.) "Whoever knows the structure of the brain in the animal series will become convinced that the appearance of new functions is always accompanied by the appearance of new parts. This parallel development leads to the principle of education based on neurological facts and principles." Stress spontaneous adjustments to stimuli in a natural rich environment. Provide freely for "manipulation" of all manners and types. Allow and encourage all forms of crude construction and do not expect "fine" and "finished" work.

Activities. Children lack power of definite muscular control; they fail to localize movements. Appeal to them through their imaginations by means of mimetic exercises and dramatization, imitating movements—Sailor's hornpipe, pulling in anchor, rowing, climbing rope ladder to the vessel, etc. The game called "Ringmaster," where one child (the ringmaster) calls the names of animals and snaps his whip while others emulate the various animals in turn, is excellent. Use rhythms—Jolly is the Miller, etc. Use much pantomime acting, for this is natural to the child. He acts things out before he speaks. Later his desire to turn ideas into actions demands the formation of neural connections and coordinations. Activities involving eye-hand coordinations, such as ring-toss, bean-bag toss, and bean-bag catch can be encouraged. Skill in anything comes from repetition with attention.

Third-Fourth Grades

Progression is important. Through analysis arrange activities so that each child will be afforded the incentive to increase his repertoire of skills. Do not discourage the backward child. MUCH MENTI-MOTOR TRAINING will also come from other school activities in an integrated program. Bean-bags, paddle tennis, candle pins, rope quoits, target toss material, etc., can be used in individual contests and in relay passing races, relay tossing races, tossing and catching races, and the like. These are especially adaptable for school room activities. Games skills out-of-doors, involving quick and decisive movements, like swat to the right, three deep, various passing and turning relays, have definite menti-motor developmental qualities. Shop work, drawing, handwriting, painting and like activities should be of particular interest to the physical educator, who should be a specialist in all types of motor learning.

Fifth-Sixth Grades

In these grades menti-motor development is inherent in the natural activities in which the boys and girls are interested at this time. Practice and participation in the self-testing activities and the physical ability tests demands constant repetition and hence increase in skill, as in the practice of certain dance steps. The increased playing of games involving skill brings about constant and varied development. It is at this point that lack of training in the earlier grades comes out most markedly and leaves such a distorting effect upon the personality of the child who is labelled a "dub" or a "sissy" by his more fortunate colleagues.

III

What Are the Facts Regarding the Impulsive or Emotional Development of the Elementary School Child?

Briefly summarized, some of these are: This is a most important phase of development for analyses show that success and adjustment in life depend upon the integration of the personality. This is largely a matter of impulsive or emotional development and should be begun in childhood. We re-direct original tendencies by (1) *substitution* (Example: organizing a group of boys into a baseball team, instead of allowing them to express the "gang" feelings for achievement by pilfering a candy stand) and by (2) *sublimation* which involves changing attitudes and ideas so that action is changed (Example: fighting for a cause—the school, the team, rather than for self alone). The child is early building a philosophy of life which is either sound or unsound from the standpoint of mental health. In activity he is building (under proper guidance) healthy attitudes

such as self-reliance; meeting the demands of life squarely on his own. He faces reality, builds self-confidence in facing difficulties and discomforts which surely lie ahead in life. All of this deals with the organization of the nervous system through activity. Praise, encouragement, happiness and success, combined with failures whose causes are understood and acknowledged, should develop a correct sense of values, and a philosophy of joy and a sense of security and confidence which is at the very basis of all future achievement and mental health. Integration of the social group through cooperative activity and the recognition of the superior abilities of the individuals in the group and accepting their contribution for the common good should be one of the chief aims of activity. Every child who is superior in something has advanced his integration of the individual personality. The integration of the social group comes about by integrating the superior abilities of the group. (Burnham).

Given Some Facts Concerning Impulsive or Emotional Development at the Various Periods, What Principles and Activities Apply at Each Period? What Should the Specifications Call for?

Kindergarten-Primary

Principles. Curiosity is strong. They are imitative, with no self-consciousness. Plays are individualistic, non-sex. Child should early learn to face difficulties instead of running away from them. Must learn to recognize property rights of others, take turns, cooperative activity, restraint and proper use of books, victrola, etc.

Activities. Each child should have a place for his own work (clay models, etc.) and each should respect the works of others. Each should learn to take turns with toys and apparatus. (Teacher should watch for incidental acts of etiquette so that she can praise the child so that his act will be considered a "success" and so labeled in his psychological make-up.) The child should be made to enjoy satisfaction by sharing things with others. The child sharing should recognize the other as possessor and donor. At this stage, this is not a reasoning process but one of habit, with which is associated a "heightened consciousness" that comes with social approval. Situations of conduct should be so created that every child has a chance to earn approval and which encourage children to express approval and enthusiasm for their school mates. The latter trait is one of the most difficult even for adults to acquire. Jealousy and quarreling are at the basis for the non-appreciation of others' successes. Symbols and other simple concrete signs of achievement can be used very successfully with young children. They promote satisfaction in connection with the desired conduct.

Third-Fourth Grades

Principles and Activities. More cooperative playing is promoted. At least, the child at this age plays with other children, hence conduct situations are more real. In competitive contests the situations should be so manipulated that one can judge accurately as to the finish. Children should act as judges and should formulate their own rules and regulations and see that they are lived up to. The children themselves should decide on the penalty for false starts, all offenses against rules, dropping the play instruments, etc. Likewise they should regard good organization, orderly play, good judgment, accurate score keeping, etc. The following definite conduct situation outcomes should result from play activities in these grades: courteous deference to authority, cooperation, ability to handle people, initiative in planning and construction, realization of individual limitations, habits of self-criticism, patience, self-control, self-confidence, courage, decision, politeness, fairness in dealing with people, responsibility of leaders for success of management, perseverance, ambition to excel, appreciation of help rendered by others, recognition of merit of others, initiative in organizing, self-dependence in solving problems, satisfaction through success of the group to which he belongs.

Through ACTIVITY we must MOTIVATE the child making for "readiness" as Thorndike would describe this mental set. Exercise and effect (satisfaction) do the rest.

Fifth-Sixth Grades

Principles. Here the end of play takes on more of the form of social organization and with that, a greater number of conduct situations having possibilities for impulsive development. Here also reason looms large as a factor. Whereas the young child gets thrills from sheer sensory experience, the older child gets thrills from intellectual controls. He does something and as a result something occurs which gives him satisfaction. The process and reason for his activity is far more complex.

Activities at this age constantly border upon life situations. There should be an organization of the athletic council, where chosen student representatives sit, make rules and pass judgment. School "house" or "color" teams are in turn represented by various unit teams from the classes. Both boys and girls have their leagues and events yet are members of the same "house" or "color." Every student is on a team and the efforts of every student count toward the final result of the group. Success is a group success, failure a group failure. All team games, physical ability tests, and game tournaments can be organized on the group basis. These same divisions can be used for debating, social clubs, scholarship competition, etc.

IV

What Are the Facts Regarding Interpretative Development in the Elementary School Child?

In childhood, in fact in the earliest days of infancy, and perhaps in embryo, new sensory experiences result from movement. These sensory experiences take on "meaning" which in its varied form is classified and stored in the complex organization and integration of the nervous system. The direction of the "mind" in terms of ideas and the direction of "behavior" in terms of explicit bodily movement is determined by the progressive change in stimulus response activities; in other words by training. Recall is impossible unless it has been preceded by learning (training), but all recall improves learning. Even higher mental processes involving the perception of relations are dependent upon certain experiences. All learning is related to something and all activity is imbued with meaning and is symbolic. Meaning fundamentally determines all experience and nothing in our experience is free from meaning. What we cannot objectify, we cannot know. Our meaning with reference to any object or situation is determined by our whole attitude aroused by that object or situation. To mention a single concept—horizontal bar. Of this object we all have a similar basic concept, provided that we have all seen a horizontal bar and know what it is; but the concept of each person will differ according to his experience with some particular bar and his attitudes aroused by experience with that particular bar. Objects exist for us only when our nervous organization through experience has given them meaning. Darwin said, "The man who never tries an experiment is a fool." By this he meant that only through sensory experience do we become intelligent.

The function of a guided series of experiences (curriculum) is to interpret, to give meaning to, the environment. The environment should therefore be rich and varied; should supply a vast series of afferent impulses that become imbued with "meaning" as they become organized into the nervous structure. Receptivity, response and organization are a constant series of operations from birth to death. Cut out any of the series and there is no learning.

When we say of an individual, "He does not have enough background," we mean that he has not had enough experience; certain situations are meaningless to him; he does not see things in their genesis and wider casual relations; certain situations do not arouse attitudes. He is not able to interpret that which has not come into his neural organization, or to be more exact, he is able to interpret it only to the extent to which it has become part of his neural organization.

We have fairly good data to show that movement is at the very basis of all perception. We learn the meaning of facial expression from the movements of one's own face, or a tendency toward such movement as suggested by the lines of the face observed.

Perception of form, space, weight, smoothness, distance, delicacy, and many other experiences are possible only through the development of "neural patterns" (nerve paths to certain necessary muscle groups) which are ready on additional stimulation to produce actual movement. Perception then, is dependent upon the motor attitude we assume toward an object. "It is not necessary to lift a stone in order to know that it is heavy. Visual perception of size and nature is sufficient to arouse in us, through association with previous experiences of lifting, the muscle sensations or motor set which would accompany the actual process of lifting. WITHOUT PREVIOUS EXPERIENCE there would be no perception of weight. All perceptions are dependent upon the motor attitudes that are assumed toward an object. The eye measures the extent of a line by moving over it, or there is an incipient revival within us of the muscular sensations of some other part of the body, such as the hand or leg; that is, we think of the movement of that member along the line, and thus have the clue to the length of the line."[1]

These facts are important to physical education because they seem to show that the explanation of this tendency to movement must be made in physiological rather than in psychological terms.

Children's exploratory movements usually referred to as curiosity give knowledge and meaning to objects and people in the environment. The child who cannot handle things will always have an imperfect knowledge of them just as the sculptor is only able to get the most perfect impressions of a statue by actually running his hands over it. Cutaneous and kinaesthetic sensations, as already pointed out, are perhaps the most important in education and interpretation.

The rat which has learned to run a maze can have every sense but the kinaesthetic destroyed and still run the maze. Little is known about the kinaesthetic sense in humans. Much research is needed, but many authorities consider it our most important sense. Reaching, following with the eye, tasting, visual exploration, manipulation, etc., stimulate certain neurons. What "happens" at the time of this stimulation becomes associated with the sensation, developing a cause and effect relationship. This activity leads to what we call "thinking." Activity, doing, stimulates thought processes, and this leads to further activity and more thought activity. An idea is any process which serves as a symbol, which can be recalled, and which can determine a selective response.

[1] H. S. Langfield, "The Aesthetic Attitude," Harcourt, Brace & Co., 1920.

Given Some Facts Concerning the Interpretative Development at the Various Periods, What Principals and Activities Apply at Each Period? What Should the Specifications Call for?

Kindergarten-Primary

Principles. The young child is credulous and believes everything and uses it simply because he has not had enough experience to believe otherwise. In adult life we say that all ideas should come as a conclusion to facts; this is both scientific and mentally hygienic. Since our capacity to learn as adults is dependent upon how we have been trained as children, early education is extremely important. We behave only as our neurones have been conditioned and in no other way. Children must be equipped at each stage of experience (grade) with various types of resources so that the next steps can be taken. Through activity various integrations and hence possibilities for adjustment are made possible with a result that the child is ever able to face a more complex environment and to adapt to changes in the environment and to biological changes in himself. Adjustment today, as a million years ago, comes through activity (movement) as the organism reacts to the stimuli in the natural environment. These stimuli may be natural and social. We must choose the stimuli to which the child is naturally drawn. At this age he delights in things that are alive, in motion, color, in construction, however crude. Doing, thinking, and talking are closely related. The imagination is active because the child is reaching out for sensory experience and being unable to absorb all of his environment at once, he anticipates. Story plays and dramatics allow him to live out these anticipations. He is happiest in imitating the activities of his elders and the activities of life about him. He seeks hungrily for sensory experience, imitates others, accepts suggestions readily and proceeds to build his neural "matrix," which Adler terms the beginning of his "style of life."

Activities as listed under other headings. In addition, the use of rhythms in the lower grades is essential for the development of rhythm sense, which not only gives the physiological effects of exercise but teaches relaxation as well. Art and nature are correlated with creative rhythmic activities as a background. From simple skipping and running children are gradually brought into the interpretative or dance rhythms which are more advanced.

Third-Fourth Grades

Principles. Progression is of great importance. We must provide the optimum degree of difficulty to get best efforts. Children are fond of drill at this period: will repeat time and again the things they like. They are seeking for facts and information which should come as far as possible through their own activity. Facts are im-

portant, not for their own sake, but because they are necessary for reflective thinking. Thinking can only take place with reference to facts. Interpretative thinking comes only from facts of experience. Give the child a wider opportunity to select, initiate and manage his own affairs when he has proved competent. He will then interpret these experiences to (1) evaluate his own strength and weakness; (2) evaluate his own behavior and its effect upon others; (3) evaluate the physical objects of his environment and their relation to his skills, learning, studying and planning and to his possible life work and interest (at least lay the foundation for the latter).

Activities as listed under other headings.

Fifth-Sixth Grades

School experiences become more meaningful in a social way at this period. All activities should, in an incidental way, solve some problem or satisfy some need. A developing social consciousness creates appetites which cooperative team games can satisfy. The development of certain emotional tendencies raises problems that can be solved by helpful suggestions from sympathetic and understanding adults whose suggestions are particularly acceptable at this period. It is at this period that interpretative development begins to solve social problems and problems of the individual in relation to the social group. His philosophy is here beginning to meet its test in the consideration of the meaning and purpose of life.

In order to evaluate a program of activities we must have standards and ideals and these cannot be isolated from activities. The former determine the form in which the activities will be carried on. Final evaluation is possible only by determining how close our activities bring us to our desired standards; in other words, by answering the question—"What are our outcomes?" We must constantly check up on the relation between our desired outcomes and our activities designed to attain them. In an effort to create evaluation scales for each level, some of the following questions should be asked:

1. Defining the curriculum as a series of guided experience where one series fits the individual for the next, is there an opportunity for optimum degree of difficulty to challenge every learner and bring forth his best effort?
2. Are the pupils so classified according to ability and capacity that they may get the best incentive and at the same time avoid the chances of more or less continued failure?
3. Is the activity so arranged that there is an opportunity to gradually do more selecting, initiating and managing of the pupil's own learning and activity?
4. Is the material of instruction and nature of the activity adapted to meet the important question of individual differences?

5. Assuming that all learning is a reaction to wants and desires; that to be effective it must take the form of satisfying a want of the learner, what desires is this particular activity satisfying?
6. Is the activity carried on primarily under the dominant purpose of the learner?
7. Is the knowledge of the end sought kept before the child? Is the goal kept in sight?
8. Does the student have a "knowledge of the score"? Does he know what progress he is making?
9. Does improvement bring satisfaction and retardation dissatisfaction?
10. What evidences are there that the children keep on playing in their out-of-school activities, the activities taught in the school?
11. Is the element of joy present in the "at-school" activities? What degree of interest? Satisfaction? Attention?
12. What possibilities for leadership do the activities offer?
13. If health or other information is being given, does it satisfy a want; does it solve a problem for the child?
14. Does the health teaching serve primarily as a basis for interpreting the child's physical condition to him?
15. Is the program of activities well balanced? Does it allow for equal balance between activities involving organic, menti-motor, interpretative and impulsive development?

An Experiment in Teaching Methods of Golf

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PURPOSE

PHYSICAL educators who are interested in more accurately measuring the effects of their programs of teaching physical education activities must be guided more and more by fact rather than opinion. Mere guessing or depending upon previous experience to determine whether one procedure is better than another is an easy way out of a dilemma but it is not the way the modern scientific minded individual arrives at conclusions.

One needs only to read the daily newspapers and current magazines to realize that much has been written on the subject of how to play golf, but a careful perusal of the literature reveals the fact that only a few of the writers suggest where the novice should begin the learning of golf. Professional golfers who write articles on how to play the game merely indicate what they consider to be the proper way to grip a club, the correct stance for a particular stroke, how to swing, pivot, and play the ball, but few mention the starting point for the beginner. Some professionals will start the novice with the full swing of the brassie, others will start with the mashie, and still others will recommend the use of the putter first. Throughout most of the articles there seems to be a uniformity of instruction technique concerning the way each of the numerous strokes of golf should be played, but seldom does the writer indicate that the beginner might make greater progress and be better grounded in the fundamentals by starting with one club rather than another.

The controlled experiment herein described represents an attempt to discover by means of teaching and testing whether one method of instruction in golf is better than another. Should the instruction follow a logical order similar to the way the game is played, starting with the wooden clubs, followed by the midiron, mashie and putter, or a psychological order which starts the beginner with the simpler movements of putting, followed by the more difficult movements of the mashie approach shot, and by progressive steps to the more com-

plex swing of the midiron and brassie? Briefly stated the problems of this experiment are:

1. Which of the following teaching procedures will result in the acquisition of a greater degree of skill in golf: (a) *Psychological procedure* which starts the instruction with the putter followed by the mashie, midiron and brassie? (b) *Logical procedure* which starts the instruction with the brassie followed by the midiron, mashie and putter?

2. What series of golf tests can be administered indoors, which will test the players' ability to use the four golf clubs named above?

3. What degree of skill acquired during a course of instruction is retained after six months of no golf instruction, practice, or play?

4. Which of the four golf clubs is most frequently used by beginners?

5. What types of playing errors are most common with beginners, towards which preventive measures might be directed by the instructor?

METHOD

1. Groups

Psychological group—consisted of twenty-five students in the department of physical education of the Chicago Young Men's Christian Association College. Instruction started with the putter.

Logical group—consisted of twenty-six students, most of whom were not majoring in physical education, at the same College. Instruction started with the brassie.

Control group—consisted of twenty individuals part of whom were students and part of whom were members of the faculty of the same College. They received no instruction, did no practicing, and practically no playing during the experiment.

2. Testing

Three series of tests were given: the pre-tests were held early in October before the player received any instruction; the second tests were held at the end of the fourth week; and the six-month test was held in the latter part of April, six months after the final instruction practice and play. The tests were conducted under as nearly identical conditions as it was possible to develop. The same set-up of equipment was used for all tests. The tests were held indoors in order to assure uniformity of conditions. The tests are as follows:

Brassie and Midiron Tests

The same equipment and scoring system was used for these clubs. The equipment consisted of a golf net with a ceiling, two side walls,

and one end wall; and two cocoa door-mats each of which was two by three feet in size. The player stood on one mat and played the ball off of the other mat. The mats were fastened to the floor and were twenty-one feet from the target. The target was ten feet square and hung at the far end of the net; it was marked off into twenty-five areas each of which was twenty inches square. The areas of the target were evaluated according to the type of shot made. For instance, a ball which struck on the right side of the target would undoubtedly be a slice if played that way on a golf course, and a slice is considered to be one of the outstanding errors of golf. If the ball struck on the left side of the target it was called a hook. (The reverse of this would be true for left-handed players.) The same holds true of the values in reference to the height of the shot, a high ball at such short distance would not be rated as high in scoring value as a ball which struck below the center of the target. Accuracy was the determining factor in the tests.

Each individual played ten shots with the brassie and ten with the midiron, another student recording the scores. It was possible to make 100 points with each club. No preliminary practice or instruction was permitted.

4	6	6	6	2
4	8	10	8	2
4	9	10	9	2
3	7	10	7	1
3	5	5	5	1

Mashie Test

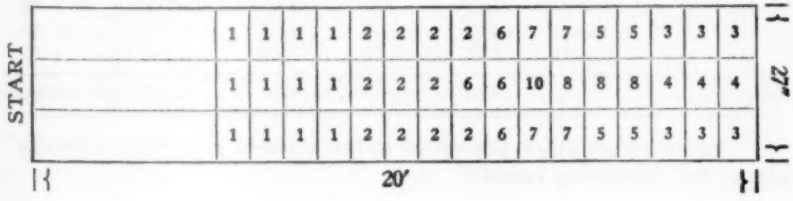
This test was designed to ascertain the individual's ability to make a short approach shot to a green. The target consisted of gymnasium mats arranged flat on the floor of the gymnasium. The target was marked off into twenty-five areas each of which was four feet square. The shots were evaluated according to the spot where the ball landed rather than where it rolled or bounced. The player took ten shots with the mashie, the score being recorded by another player. In making the shots the player stood on cocoa door-mats similar to the mats used

for the brassie-midiron tests. These mats were placed fifteen yards from the nearest edge of the target. It was possible to make 100 points in ten shots. Accuracy was the determining factor as in the previous tests.

1	4	5	4	1
1	7	7	7	1
3	9	10	9	3
3	8	8	8	3
2	6	6	6	2

Putting Test

The putting test was held on smooth carpets which were twenty-seven inches wide and twenty feet long. The carpets were securely fastened to the floor in order to assure uniformity of putting surface. The player stood at the starting line of the carpet and endeavored to putt the ball into the hole (a circle the size of a regulation hole painted on the carpet). The distance from the starting line to the first scoring area was eight feet, to the hole was fifteen feet, and to the last area was eighteen feet. The carpet was marked off into forty-eight areas each of which was nine inches square. Distance and direction were the determining factors. Balls that stopped slightly short of the hole were considered to be lower in point value than balls that travelled slightly beyond the hole. The reason for this was that on a regular green a ball that seems to be rolling too far frequently rolls into the hole, whereas a ball that is too short never goes into the hole. The score was counted at the point where the ball stopped. A better plan would be to have a slightly elevated "green" and a sunken hole. It was possible to make 100 points in ten shots.



3. Instruction Practice and Play

The psychological and logical groups received two hours of group and individual instruction in the use of each of the four clubs, and in the order named. Following the instruction for each club the student was required to take fifty practice shots with that club into the golf net or on the putting carpet. The strokes were recorded by the student's partner, the groups having been divided into pairs for instruction purposes. The student instructor not only recorded the practice shots but he also criticized the "form" of the player. By this procedure the student learned to be critical not only of his partner but also of himself. A record of the errors made in the practice shots is shown in another section of this report. At the conclusion of the eight hours of instruction and 200 practice shots (50 for each of four clubs) the groups were arranged into foursomes and played nine holes of golf on four consecutive days. The instruction and practice required about ten days' time.

Results

The results of the experiment are shown in the following tables and graphs. The arithmetical mean scores of the groups are used.

TABLE I

Group	Club	Pre-test	Second Test	6 Month Test	% gain 2 over 1 test	% net gain or loss pre-test to 6 month test.
Psychological Group	Brassie	25.1	43.3	35.5	72 %	45 %
	Midiron	45.4	57.9	50.6	27 %	11 %
	Mashie	22.5	26.0	29.0	15 %	28 %
	Putter	28.4	42.0	31.0	44 %	8 %
	Mean	30.3	42.3	36.5	39.5%	23 %
Logical Group	Brassie	29.9	36.5	32.2	22 %	7 %
	Midiron	44.7	54.3	47.3	21 %	5 %
	Mashie	16.7	26.0	23.2	55 %	33 %
	Putter	34.3	38.5	37.0	12 %	7 %
	Mean	31.4	38.8	34.9	27 %	13 %
Control Group	Brassie	46.7	46.0	42.5	— 1 %	— 9 %
	Midiron	60.1	57.9	59.2	— 4 %	— 1 %
	Mashie	39.1	31.9	31.0	—18 %	—21 %
	Putter	43.6	43.1	36.8	— 1 %	—16 %
Mean		47.3	44.7	42.4	— 6 %	—11.7%

The following graph presented in the form of an "Ability Profile" shows the foregoing results.

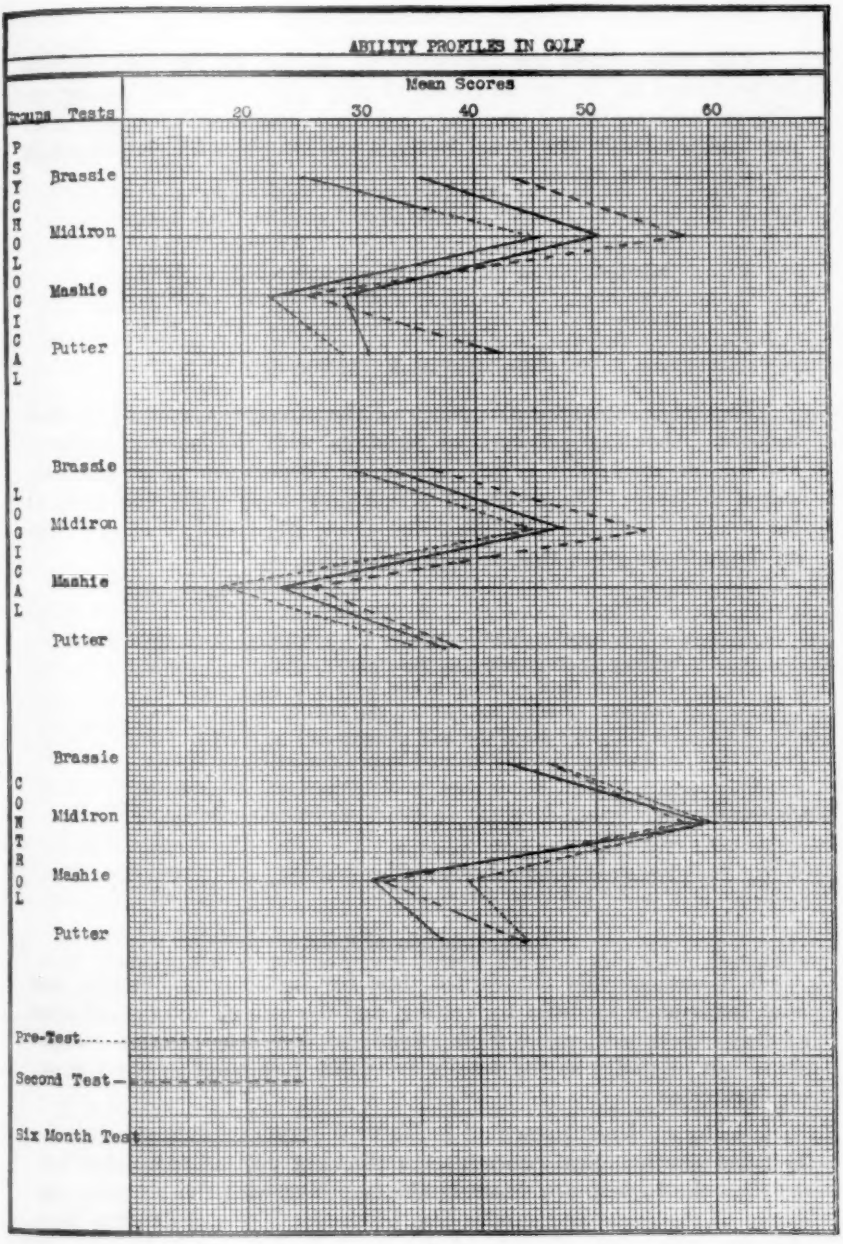

ABILITY PROFILES IN GOLF
Mean Scores
20
30
40
50
60
Groups Tests
PSYCHOLOGICAL
Brassie
Midiron
Mashie
Putter
LOGICAL
Brassie
Midiron
Mashie
Putter
CONTROL
Brassie
Midiron
Mashie
Putter
Pre-Test
Second Test
Six Month Test

TABLE II

This table shows the frequency of the use of the various clubs by beginners on the second round of play following their instruction. The games were played on a short nine-hole course which is very level and comparatively free from hazards and rough, with the exception of trees and shrubbery.

Club	*Percentage*
Brassie	11%
Midiron	16%
Mashie	30%
Putter	43%

TABLE III

This table shows the frequency of the principal errors of practice indoors. About 60 per cent of all shots with the brassie, midiron, and mashie resulted in errors, and about 70 per cent of all putts resulted in errors. The errors of actual play were about the same as for practice with the exception that there were more "short" putts on the outdoor green than is indicated below.

Errors	*Percentage*
Midiron, mashie, brassie—	
Slicing (ball curving to the right)	38%
Hooking (ball curving to the left)	29%
Topping (hitting the ball on the top)	14%
Fanning (missing the ball completely)	7%
Schlaffing (hitting ground before the ball)	7%
Putter—	
Too far and poor direction	46%
Too short and poor direction	25%
Too short but good direction	17%
Too far but good direction	12%

Interpretations of Results

It is obvious that the limited time for instruction, practice, and play, inadequate facilities for testing, and the limited number of cases of this experiment, make it impossible to arrive at positive conclusions, but in so far as the results are valid they point in the following directions:

1. The evidence presented in Table I seems to indicate that the so-called psychological procedure in teaching golf is somewhat better than the logical, for it starts the beginner with the simplest elements of the game and carries him by progressive steps to the more complex. The ultimate gain of the psychological group though only ten per cent greater than that of the logical group is sufficiently large to indicate that the psychological procedure may possess merit as a

method of teaching. The results of the pre-tests show that the two experimental groups were fairly well equated.

2. No standard golf tests were available for use in such an experiment; those which were used being developed by the writer after counselling with experienced golfers. The tests are easily administered, interesting to the beginners and to more advanced players, accurate, and we believe that further use will prove they possess a high degree of validity and reliability. They are also useful instruments for teaching purposes and are distinctly objective. If the tests were given frequently they could be used to develop learning curves showing the rate of progress for individuals, and they could be used for the solution of such specific problems as the best distribution of practice, order of elimination of errors, and many other principles of motor learning.

3. During the six months period of no golf activity the loss of ability as revealed by the test scores was as follows:

Psychological group	13.5%
Logical group	11.9%
Control group	5.7%

In spite of the greater loss by the psychological group, the net gain was sufficiently large to warrant the interpretation stated in section one. It is interesting to note that the rate of "forgetting" is about the same for the first two groups. It is of further interest to note that the psychological group made a net gain of forty-five per cent in the ability to use the brassie, whereas the logical group gained only seven per cent. In the use of only one club (the mashie) the logical group exceeded the psychological group.

4. The results shown in Table II, in so far as they are accurate, might be used by the instructor who is desirous of ascertaining where he should place the greatest emphasis in his instruction, and of determining the amount of time he should give to each of the four clubs. If these results are to be taken as criteria, the instructor will probably spend much more time in teaching the proper use of the putter and the mashie than he will spend in teaching the use of the midiron and brassie.

5. The results shown in Table III indicate that the beginner makes errors in over one-half of his strokes. Of these errors, slicing and hooking are most frequent for the brassie, midiron, and mashie; and combinations of distance and direction are the outstanding errors in putting. This is a very clear indication of the need and importance of a fairly automatized golf swing, which comes only with considerable practice of the right sort.

Many other factors such as the physical condition of the students at the time of the tests; the problem of fatigue in the practice shots; the hour of the day the instruction practice and play takes place; in-

dividual differences as to learning capacity; interest and motivation; are all questions of considerable importance in such an experiment, for each may have a very definite bearing upon the final results. These and many other problems remain for future experimentation.

Note: Since preparing this article the writer has completed a second controlled experiment in the teaching of golf. During the month of October two classes have been conducted and the same teaching procedure as indicated in the foregoing article was used with the following exception: three hours of instruction instead of two were given in the use of each club. The following results give additional support to the statement that the so-called psychological procedure in teaching golf is somewhat better than the logical for the psychological group improved 52 per cent, whereas, the logical group improved only 35 per cent.

An Experiment in the Use of Knowledge and Skill Tests in Playground Baseball[1]

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WITH a realization that measurement is indispensable to growth in scientific education, coupled with an urgent desire to build up some tangible proof of the "education in physical education," we attacked the uncharted field of tests in physical education in elementary schools.

Many factors drew us into this experiment:

(A) *the problem of the teacher* who is required to give a grade in physical education, and in many parental cross-examinations must give evidence of the source of such a grade, and who flounders considerably in an attempt to explain a subjective opinion called a grade. "A mark or grade in physical education should represent a definite evaluation of neuro-muscular skills, and until this custom has become universal, our present chaotic state of school marks is bound to continue."[2] We therefore attempted to develop a tool which might help the teacher diagnose existing learning conditions. Such a tool we hoped would assist in motivating the practice of technique and allow the teacher to objectively determine to what extent a pupil progresses during certain learning periods. The problem of motivating technique has always been difficult. With test results graphically presented, a pupil can be shown his record as an individual and as a member of the group. In this way, his grade in physical education becomes meaningful to him and not merely a teacher opinion;

(B) *the standpoint of the supervisor.* We believed, and later found through experimentation, that tests could be a motivating factor in improving the quality of teaching. Tests are also one means of a check-up on the job the teacher has done;

[1] Experiment carried on in Grades V and VI of the Elementary Schools in Royal Oak, Michigan, and Austin, Texas.

[2] Bovard, J. F., and Cozens, F. W., Tests and Measurements in Physical Education, page 19.

(C) *the view point of the school administrator* with whom we wished to establish ourselves on a sound educational basis, and finally,

(D) *the pupils themselves* were a factor in leading us into the experiment. With the thought in mind that "we like to do those things which we can do well," and firmly believing that knowledge of achievement acts as an incentive to the child, we began our study. With definite information, after testing, the teacher can show the child what he has accomplished in the interim between the beginning of the season and the end. Again, the pupil can determine where he stands with reference to the group. It is such things that help to make more forceful teachers and more enthusiastic learners.

An analysis of the above situation combined with the knowledge that "progress from now on will not be seen in long strides, but in small details of improvement in teaching"[3] led us to limit ourselves to one field of testing, namely, that of skill and knowledge tests in certain team sports.

In this particular report we shall discuss only the tests in Playground Baseball for boys, Grades V and VI. These tests have been developed and administered in an actual teaching situation. We combined the use of skill tests with knowledge tests, believing that proof of a correlation between the two would be an administrative asset. There seemed to be a possibility that skill and knowledge tests are interdependent in playing a good game. Carryover value of a sport appeared doubtful if an individual possessed no knowledge of game situations and plays.

PROBLEMS

A—Selection of test elements in a battery to measure skill in playground baseball; construction of a knowledge test in playground baseball.

B—Establish validity of test elements and battery.

C—Determine reliability of tests.

D—Determine the rate of achievement: that is, upon administering an initial test of skill in playground baseball at the beginning of the season followed by the same test at the end of the season, determine what should be the average rate of improvement for individuals and for groups tested in this sport.

E—Determine what correlation, if any, exists between playing regulations and knowledge of game situations, and physical skill in playground baseball.

ORDER OF PROCEDURE

A—Selection of Test Elements

A battery of skill tests using elements of technique in game situations in playground baseball, was developed over a period of three

[3] Lecture, Education 233A, Teachers College, Columbia University, Dr. Milo B. Hillegas, July, 1930.

years. "Test results are more comparable to life results the more nearly the test approaches the character of the life process,"[4] so in order to determine a representative sampling of game techniques, we (a) had the teachers of physical education in the aforementioned city systems[5] analyze the techniques of playground baseball playing ability, and accepted the rating of their combined judgments; (b) noted elements of the game of playground baseball which children practice by themselves, and which they, undirected, put into simple practice games; (c) experimented with skills chosen by known workers in this field.[6 7 8]

In this way we developed a battery of skill tests. These tests have been used over a period of three years in actual teaching situations in the cities of Royal Oak, Michigan, and Austin, Texas. During the past two years the following groups of pupils have taken the tests:

TABLE I

Numbers Taking Skill Tests

	Grade V. (Average Age 10.9)			Grade VI. (Average Age 11.8)		
	1929-30	1930-31	Total Fifth Grade boys tested	1929-30	1930-31	Sixth Grade boys tested Total
Baseball Throw for Accuracy	805	755	1560	773	563	1336
Batting	807	754	1561	749	566	1315
Catching Fly Balls	754	775	1529	755	566	1321
Catching Grounders	778	775	1553	763	486	1249
Hit and Run	371	722	1033	417	482	899

Standardized Directions for the Skill Tests

1. BASEBALL THROW FOR ACCURACY

Equipment—12-inch playground baseball; target—use a solid wall for the target; draw a rectangle 18″x36″, the lower edge of which is 18″ from the ground—around the first rectangle draw another rectangle 30″x48″. This second rectangle will be 6″ from each side of the first rectangle; pitching line 35′ from the target.

The Test—individual taking the test stands with the toes of both feet on the pitching line. He is allowed 10 trials to hit the target, using the regulation underhand throw, and throwing from the pitching line. (Only one step is allowed in delivering the ball.)

Score—score two points for each throw which hits within the inner rectangle; score one point for each throw which hits within the second rectangle.

[4] McCall, W. A., How to Measure in Education, page 196.
[5] A total of 23 judgments.
[6] Brace, D. K., Measuring Motor Ability, page 78.
[7] Andersen, Leonora, An Athletic Program for Elementary Schools, Chapter X.
[8] Hillas, M. and Knighton, M., An Athletic Program for High School and College Women, page 60.

A ball which hits on the line of the inner rectangle shall be scored one point. A ball which hits on the line of the outer rectangle shall be scored a failure. Total possible score 20 points.

The target used in this test was finally adopted after experimenting with a single rectangle with the discovery that performance was limited at the high end of the scale. The size of the inner rectangle was determined through study of anthropometric measures of children. The size of this rectangle approximates the size of a boy at home plate, while the distance from the ground takes into consideration lower leg length of elementary school boys. The second rectangle six inches from the first allows for size of ball, and also normalizes the scoring range. The pitching line is regulation pitching distance in Playground Baseball. In this test as in the others following we attempted to approximate actual game situations.

2. BATTING

Equipment—regulation playground bat and 12 inch balls. Home plate and pitcher's box 35′ away are established. Diamond, 45′ bases constructed according to Official Playground Baseball Rules.

The Test—individual stands in the batter's box and is given 10 trials to hit a ball pitched from the pitcher's box by a legal underhand throw. Trials must all be on good balls. Balls which would be counted "balls" should not be included in the ten trials.

Score—score one point for each batted ball which first strikes the ground in the infield; score two points for each batted ball which first strikes in the outfield. Fouls are unsuccessful tries and score no points. Total possible score 20 points.

More detailed zoning of scoring areas was not attempted because of the fact that we are dealing with elementary school children. The effect of the personal equation in this test was held more constant by using one pitcher (usually the instructor) throughout the administering of the test.

3. CATCHING FLY BALLS

Equipment—12 inch playground ball in good condition. Brick wall or other surface from which balls will rebound. Mark 15 foot height on the wall. Stop watch.

The Test—the player taking the test throws the ball repeatedly against the wall at a height of 15′, for a period of 30″, catching it on the rebound. A preliminary practice throw to "get the feel" of the ball on its rebound may be allowed. A second 30″ period may be allowed if player taking the test so desires.

Score—score the number of times the player catches the ball, having thrown it at the above height, for a period of 30″. If the player fumbles and drops the ball his score is taken as the last successful catch he made. Balls not reaching 15′ height are scored zero.

This test was selected because it eliminated the personal equation and allowed for uniformity in equipment and test layout for the average school. Addition of the preliminary practice throw to "get the feel" of the ball and the allowance of a re-trial have practically eliminated failure to score on the test. The restraining line for the thrower was abolished in this test, because preliminary experiments showed that a boy throwing and receiving a ball at a height of 15′ usually stayed between 12 and 20 feet from the wall. An attempt to approximate the game situation of being able to shift position for a catch was likewise considered in removing the thrower's restraining line.

4. CATCHING GROUNDERS

Equipment—12 inch playground balls in good condition. A solid brick wall or other surface from which balls will rebound. Lines parallel with the wall drawn 6′ and 20′ from it. Stop watch.

The Test—player taking the test starts behind the 20′ line at the timer's "go" and throws the ball against a solid wall so that it will rebound a grounder. It should be thrown with sufficient speed to make a quick rebound. The ball must be *caught* within an area marked by the two parallel lines (6 and 20 feet from the wall). Allow thirty seconds for the test. A preliminary practice throw to "get the feel" of the ball on the rebound may be allowed. A second 30″ period may be allowed the player if he so desires.

Score the number of times the ball is successfully caught during the period of 30 seconds. Player must stay within two parallel lines. A fumbled catch is not considered successful. If a player fumbles and drops the ball his score is taken as the last successful catch made.

As in the previous test of catching fly balls, this test was chosen because equipment was simple and uniform in all situations, likewise no extra person affected the giving of the test. Establishment of restraining lines at 6 and 20 feet from the wall has eliminated attempts to throw without force. Going in to meet the ball appears to be more nearly like the game situation. Likewise the time element of 30″ has been found to be long enough to test the boy's ability without bringing in the element of fatigue. Shorter or longer time periods have proven unsuccessful.

5. HIT AND RUN

Equipment—12 inch playground ball, official playground bat. Diamond marked for playground baseball, 45 foot bases. Pitcher's box 35 feet from home plate. Stop watch.

The Test—the player taking the test stands in the batter's box at home plate, hits a pitched ball and runs to first base. Player is required to bat only at pitched balls which would be counted as 'strikes.' Any ball, foul or fair, is considered a hit. Two trials may be allowed if the player so desires.

Score time in seconds, taken from the time the player first hits the ball until he reaches first base. Time is recorded in fifths of seconds.

Considering any batted ball a hit has helped to eliminate the chance of testing batting ability, rather than the ability to make a speedy run to first base after connecting with a ball. This makes the time necessary to administer the test shorter than if player tested were able to run only on fair balls. Left handed batters tested scored slightly faster in this test, but the score difference did not warrant a new ranking for elementary school boys for right and left handed batters.

After the elimination and refining process of early experimentation, intercorrelations were run between the remaining five elements of the skill test. High intercorrelations would show measurement of the same ability by different tests. Refer to Table VIII. The intercorrelations shown by this table do not warrant the disposal of any of the single test elements selected. For both fifth and sixth grades (boys) the frequency distributions of each single test within the battery were transposed into SCALE SCORES according to McCall's T. Score Method.[8] This permitted comparison of results and allowed

[8] McCall, W. A., How to Measure in Education, Chapter X, page 272 ff.

for additions of scores on single test elements into the Composite Scores. Refer to Tables 2 and 3.

TABLE II

Playground Baseball Skill Tests

Grade V—Boys

Scale Scores

Baseball throw for Accuracy		Batting		Catching Fly Balls		Catching Grounders		Hit and Run	
Raw Score	T Score	Raw Score	T Score	Raw Score	T Score	Raw Score	T Score	Raw Score	T Score
0	28	0	21	0- 1	32	0- 1	29	5-3/5	20
1	33	1	25	2- 3	38	2- 3	32	5-2/5	24
2	36	2	30	4- 5	41	4- 5	36	5-1/5	25
3	39	3	33	6- 7	43	6- 7	42	5	28
4	42	4	37	8- 9	46	8- 9	44	4-4/5	30
5	45	5	40	10-11	49	10-11	48	4-3/5	32
6	47	6	43	12-13	54	12-13	52	4-2/5	35
7	49	7	46	14-15	60	14-15	56	4-1/5	40
8	52	8	48	16-17	65	16-17	60	4	44
9	54	9	51	18-19	70	18-19	63	3-4/5	48
10	56	10	54	20-21	73	20-21	67	3-3/5	53
11	59	11	56	22-23	74	22-23	69	3-2/5	57
12	61	12	58	24-25	76	24-25	72	3-1/5	62
13	63	13	60	26-27	80	26-27	75	3	66
14	65	14	62	28-		28-29	78	2-4/5	71
15	67	15	65					2-3/5	76
16	69	16	67						
17	71	17	69						
18	73	18	71						
19	75	19	74						
20	79	20	74						

TABLE III

Playground Baseball Skill Tests

Grade VI—Boys

Scale Scores

Baseball throw for Accuracy		Batting		Catching Fly Balls		Catching Grounders		Hit and Run	
Raw Score	T Score	Raw Score	T Score	Raw Score	T Score	Raw Score	T Score	Raw Score	T Score
0	24	0	24	0- 1	21	0- 1	27	5-2/5	20
1	27	1	27	2- 3	33	2- 3	34	5-1/5	22
2	31	2	29	4- 5	37	4- 5	37	5	23
3	34	3	32	6- 7	40	6- 7	40	4-4/5	28
4	38	4	35	8- 9	42	8- 9	43	4-3/5	31
5	40	5	38	10-11	45	10-11	46	4-2/5	34
6	42	6	41	12-13	49	12-13	50	4-1/5	38
7	45	7	44	14-15	56	14-15	54	4	42
8	48	8	46	16-17	62	16-17	57	3-4/5	46

9	51	9	48	18-19	67	18-19	60	3-3/5	51
10	53	10	51	20-21	71	20-21	63	3-2/5	56
11	56	11	54	22-23	74	22-23	67	3-1/5	62
12	58	12	56	24-25	78	24-25	72	3	67
13	60	13	58	26-27	80	26-27	77	2-4/5	71
14	62	14	61			28-29	80	2-3/5	78
15	64	15	63						
16	66	16	65						
17	68	17	67						
18	72	18	70						
19	76	19	74						
20	80	20	77						

B—Establishing the Validity of Test Elements and the Battery

To determine the validity of a given test, that is, to determine whether it measures what it claims to measure, we must have some criterion with which to compare our test. The absence of objective criteria in the field of physical education makes it necessary that those in the process of test construction attempt to establish such a measure of validity. The criterion of playground baseball playing ability should be judged success in that ability. Two measures of success were used in this instance:

a. combined judgments of teacher and squad leader rating the same individual on ability in playground baseball, and
b. success in making school and class teams.

Standards for judging ability in playground baseball were set up on the 5 point (A, B, C, D, E) basis of grades in the two school systems. All boys in grades 5 and 6 were rated according to this criterion with allowance for plus and minus gradations from A minus to D minus.[20]

Criteria for Judging Ability in Playground Baseball

Excellent "A"	Made school team in playground baseball. Played intelligently with others in team play. Demonstrated superior ability in game maneuvers. Had outstanding command of technique.
Above Average "B"	Showed promise of making school team. Made class team in intramural program. Demonstrated above-average baseball "sense." Knew and used good technique in playing the game.
Average "C"	Employed fundamental techniques in the game. Showed fair achievement in team play at the end of the season. Had potential ability to make a class team.
Below Average "D"	Unable to demonstrate game techniques effectively. Weak in ability to play with a group. Showed small improvement in playing game at season's close.

[20] 8%—A, 24%—B, 36%—C, 24%—D, 8%—E.

Poor "E"	Failed on playing field to play an intelligent game. Showed no interest or ability in team play. Lacked ability to readily learn game techniques.

Correlations by the Pearson Product-Moment Method[11] were run between the single test elements and the judgment rating (refer to Table VIII), and also between the Composite Score and the judgment rating of playground baseball ability.

TABLE IV

Playground Baseball

Correlation

Composite T Scores on Skill Tests and Judgment Rating

Grade	Correlation	Probable Error of r
V	.628	.0272
VI	.652	.0275

"A product-moment correlation coefficient of .60 or above, for this type of data, may be regarded as a high coefficient."[12]

Validation of single test elements was established by:

a. showing increase of accomplishment with successive ages and grades. (Refer to Table V.) "A test to be a valid measure of any of these abilities (physical abilities) should show a gradual and somewhat uniform rise in success as we go up the age scale."[13]

b. comparison of the Mean of average unselected group of 450 boys and those who made the school team, which event requires superior ability in playground baseball. (Refer to Table VI.)

TABLE V

Playground Baseball Skill Tests

Change in Obtained Scores on Initial and Achievement Tests

			Median	Lower 25%	Middle 50%	Upper 25%
Baseball Throw for Accuracy	Initial Test —	Grade V	6	0- 4	5- 9	10-20
		Grade VI	8	0- 6	9-11	12-20
	Achievement— Test	Grade V	8	0- 6	7-12	13-20
		Grade VI	10	0- 8	9-13	14-20
Batting	Initial Test —	Grade V	8	0- 5	6-10	11-20
		Grade VI	9	0- 7	8-12	13-20
	Achievement— Test	Grade V	10	0- 6	7-12	13-20
		Grade VI	11	0- 8	9-13	14-20

[11] Garrett, H. E., Statistics in Psychology and Education, page 163 ff.
[12] Rugg, H. O., Statistical Methods Applied to Education, page 84.
[13] Bovard, J. F., and Cozens, F. W., Tests and Measurements in Physical Education, page 244.

Catching Fly Balls	Initial Test —	Grade V	10	0- 5	6-13	14-24
		Grade VI	12	0- 9	10-14	15-25
	Achievement—	Grade V	13	0- 9	10-15	16-26
	Test	Grade VI	14	0-11	12-15	16-26
Catching Grounders	Initial Test —	Grade V	11	0- 7	8-14	15-23
		Grade VI	13	0- 8	9-15	16-29
	Achievement—	Grade V	13	0- 9	10-17	18-26
	Test	Grade VI	15	0-11	12-18	19-29
Hit and Run	Initial Test —	Grade V	3⅘	5⅗-4⅕	4 -3⅗	3⅕-2⅗
		Grade VI	3⅗	5⅗-4	3⅘-3⅗	3⅕-2⅗
	Achievement—	Grade V	3⅗	4⅗-4	3⅘-3⅗	3⅕-2⅗
	Test	GradeVI	3⅗	4⅗-3⅘	3⅗-3⅕	3 -2⅗

TABLE VI

Comparison of Mean Scores on Skill Tests of Unselected Group and Team Members

	Grade V		Grade VI	
	Mean Score of Unselected Group on Achivement Test	Mean Score of Team Members on Achievement Test	Mean Score of Unselected Group on Achievement Test	Mean Score of Team Members on Achievement Test
Baseball throw for accuracy	10	16.1	12	15
Batting	9	16.2	11	15
Catching fly balls	13.5	18	14.3	16.3
Catching Grounders	14.6	21.4	16	21
Hit and Run	3.3	3.03	3.1	2.8
Composite Score				
Initial Test	244.5	285.2	254.5	284.6
(% Difference)		17%		16%
Achievement Test	280.5	334.7	283.12	329.7
(% Difference)		18%		16%

Note: It will be noted that in several cases the mean of fifth grade boys who made the school team is slightly higher than that of the sixth graders who made the school team. It seems possible that pressure of competition with sixth graders would allow only very superior fifth grade boys to make the team.

Pupils who were members of school teams were shown, on the average, to have mean scores considerably above the average for pupils in general. The judgment ratings given the team members were noticeably higher than those of the general group.

C—Determining Reliability

a. *Single test elements of the battery.* The skill test in playground baseball was given to all boys in the fifth and sixth grades at

the beginning of the baseball season. This test, called the Initial Test,[14] was given before any definite practice in game elements was begun. At the close of the season all boys were given a second test of the same skills, called the Achievement Test. This was done at first to establish reliability, and later to show rate of improvement in the various skills. The printed directions for the skill tests were placed in the hands of all teachers of physical education. Squad leaders organized their own groups for tests, helped with field lay-out, acted as scorers and judges, and in many cases manipulated the stop watches in timed events. Previous to the day of the testing, squad leaders were instructed about the tests and use of the uniform scoring sheets, were cautioned about their responsibility and were given definite charges. This procedure has been deemed invaluable in giving the boys an experience type of education in a situation where leadership can be developed. Standardized directions for administration of the tests were given to teachers with instructions on field layout and suggestions on group organization for administering the test.

Precautions were taken at the start to secure as high reliability as possible between repeated applications of the test by establishing uniform equipment for both testings, and making instructions and descriptions of the tests sufficently clear and definite in order that all examiners should interpret the tests alike.

It is true that practice on a test and growth in the trait tested should not markedly influence the reliability coefficient, but the range of ages, size of group tested, the personal equation of pupils scoring, varied skill of examiners, and differences in teaching ability during an instructional period, cannot help but influence to some extent a coefficient of self-correlation.[15] It will be noted at once that extremely large groups were tested in this experiment in a practical teaching situation. (See Table VII.)

TABLE VII

Self-Correlations of Skill Tests

	Number Tested	Range of Ages	Self r	P.E. of r
Grade V—(Initial and Achievement Tests)		Av. 10.9		
Baseball Throw for Accuracy	755	9-14	.61	.0305
Batting	754	9-14	.603	.0305
Catching Fly Balls	775	9-14	.632	.0272
Catching Grounders	775	9-14	.601	.0272
Hit and Run	722	9-14	.59	.0272
COMPOSITE SCORE	750	9-14	.73	.0209

[14] Terminology suggested by Dr. D. K. Brace.
[15] Garrett, H. E., Statistics in Psychology and Education, page 271.

Grade VI—(Initial and Achievement Tests)		Av. 11.8		
Baseball Throw for Accuracy	563	10-14	.601	.0305
Batting	566	10-14	.612	.0305
Catching Fly Balls	566	10-14	.632	.0275
Catching Grounders	486	10-14	.62	.0305
Hit and Run	482	10-14	.69	.0243
COMPOSITE SCORE	450	10-14	.762	.0209

According to McCall,[16] "A class score for a class of ordinary size will be sufficently reliable for most purposes even though the test's self-correlation is as low as .55. But if the test scores are to be used to make important judgments concerning individual pupils, the self-correlation should be above .9. Scores for individual pupils have some value when the self-correlation falls considerably below .9."

b. *Battery reliability.*

TABLE VIII

Test Intercorrelations[17]

Final Battery

Test Variables	Correlation with Criterion	Self r	Baseball Throw for Accuracy	Batting	Catching Fly	Catching Grounders	Hit and Run
Baseball Throw for Accuracy	.58 PE .0305	.601 PE .0305		.33 PE .0434	.30 PE .0434	.37 PE .0401	.346 PE .0434
Batting	.51 PE .0305	.612 PE .0305	.33		.234 PE .0458	.19 PE .0458	.41 PE .0401
Catching Fly Balls	.61 PE .0275	.632 PE .0275	.30	.234		.341 PE .0434	.24 PE .0458
Catching Grounders	.42 PE .0401	.62 PE .0305	.37	.19	.341		.20 PE .0458
Hit and Run	.47 PE .0401	.69 PE .0243	.346	.41	.24	.20 PE .0458	

Using the formula by Kelly[18] for correlation between sums of a series of tests not strictly comparable, the battery reliability was determined.

R of Battery, .8301 P.E. of R, .0172 S.D. of Battery, 3.72

It will be noted that the battery as a whole shows greater reliability than any of its single test elements. Battery reliability was also determined by correlating the scores on first giving with the scores on second giving. (Refer to Table VII.) "A battery coefficient of .83

[16] McCall, W. A., How to Measure in Education, page 310.
[17] Scores used are from Grade VI Achievement Test, 1930-31
[18] Kelly, T. L., Statistical Method, page 198.

seems fairly adequate for individual measurement and satisfactory for group measurement."[10]

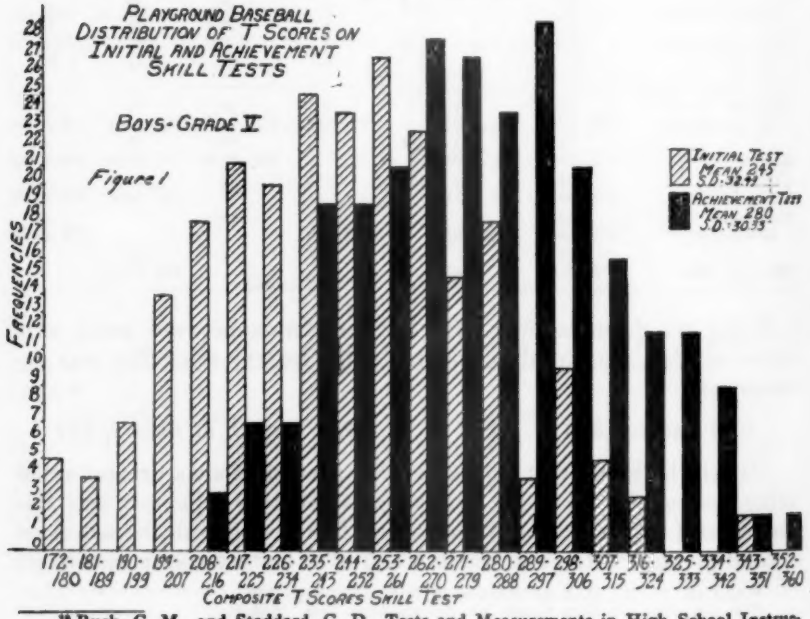
D—Rate of Achievement

It will be noted in Table V that a decided progression in achievement in the skill tests is shown in the successive grade groups when scores on individual tests are considered. Figures 1 and 2 picture the achievement when Composite Scores of the battery are taken into account. Scores on the final battery show that only 4.5% in Grade V, and 6% in Grade VI, failed to show improvement after the Initial and Achievement Tests were administered in the 1930-31 testing program. This was a remarkable improvement over the previous year, when 30% of Grade V and 11% of Grade VI failed to improve. Failure of the entire group to improve may be ascribed to one or more of the following reasons:

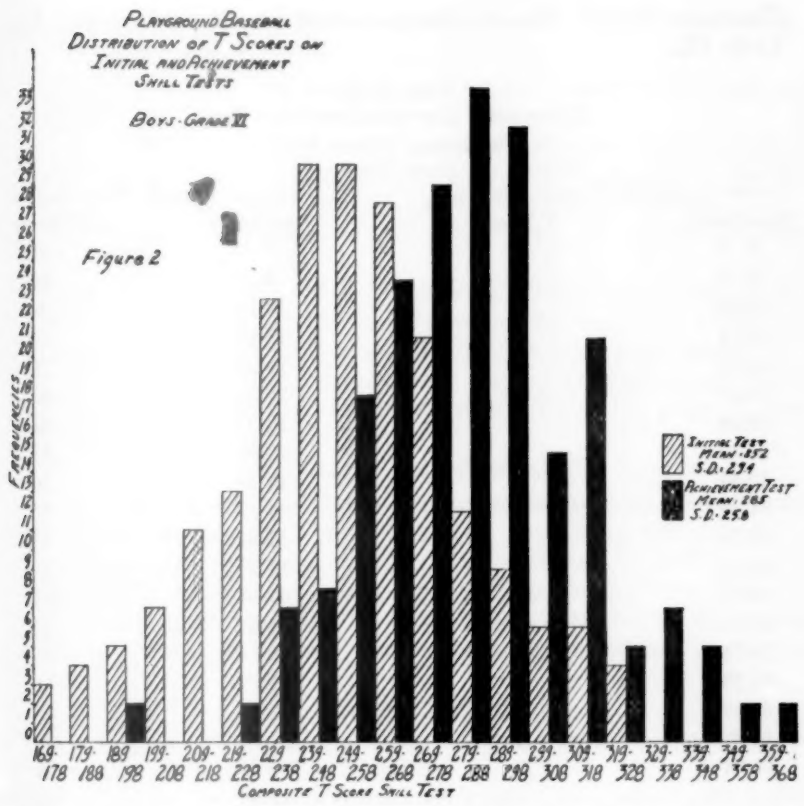
a—Out of any group a certain percentage will fail.

b—Failure of the teacher to properly motivate the child to achieve. The second test given at the close of the season may be an anti-climax when the desire to "make the team" of school or class is not present. Therefore the teacher should stimulate the child to improve his own previous record.

c—A weak teacher may not make the most of the physical education period as an instructional period.



[10] Ruch, G. M., and Stoddard, G. D., Tests and Measurements in High School Instruction, page 54.


PLAYGROUND BASEBALL
DISTRIBUTION OF T SCORES ON
INITIAL AND ACHIEVEMENT
SKILL TESTS
BOYS - GRADE VI
Figure 2
FREQUENCIES
INITIAL TEST
MEAN 252
S.D. 234
ACHIEVEMENT TEST
MEAN 265
S.D. 258
169- 179- 189- 199- 209- 219- 229- 239- 249- 259- 269- 279- 289- 299- 309- 319- 329- 339- 349- 359-
178 188 198 208 218 228 238 248 258 268 278 288 298 308 318 328 338 348 358 368
COMPOSITE T SCORE SKILL TEST

E. Determine the correlation between physical skill in playground baseball and knowledge of playing regulations and game strategy—

The knowledge test given in this study has been in the process of construction over a period of three years. During this time 970 fifth grade boys and 868 sixth grade boys in the public schools of Austin, Texas, and Royal Oak, Michigan, have been given the test. Care has been taken to standardize directions for administering, to simplify preliminary explanations and to keep the length within reasonable time limits, in order to develop a reliable test.

The knowledge test consists of 100 false and true statements on game rules and game maneuvers.[20]

Frequency distributions on question difficulty and statements most often missed on the test were compiled and with the results, the vocabulary was checked, statements were restated in better form, instructions were made simple and uniform for both pupils and examiner. The procedure followed is that suggested by Russell in his book

[20] Copy of knowledge test follows this article.

Classroom Tests.[31] Scores were converted into T-Scale units. See Table IX.

TABLE IX

Playground Baseball Knowledge Test

Elementary School Boys

Scale Scores

Grade V		Grade VI	
Raw Score	T Score	Raw Score	T Score
0- 4	25	0- 4	25
5- 9	30	5- 9	30
10-14	34	10-14	34
15-19	38	15-19	36
20-24	41	20-24	38
25-29	44	25-29	41
30-34	47	30-34	44
35-39	49	35-39	47
40-44	52	40-44	50
45-49	55	45-49	53
50-54	58	50-54	56
55-59	61	55-59	59
60-64	63	60-64	61
65-69	65	65-69	63
70-74	69	70-74	65
75-79	73	75-79	69
80-84	75	80-84	74
85-89	77	85-89	78
90-94	79	90-94	80
		95-99	82

No reliable criterion was available for determining the reliability of the knowledge test, other than the test itself. Since changes in test form have been made each year up to the present year, it was thought best to break up the 100 statements into chance halves by adding the odd numbered statements, that is, scores made on the odd numbered statements, and correlating this figure with the scores made on even-numbered statements.

Correlation according to Spearman's formula[32] is .89, P.E. .0242.

TABLE X

Correlation—Skill and Knowledge Tests, 1930-31

		r	P.E. of r
Grade V	Initial Test	.102	.0472
	Achievement Test	.11	.0472
Grade VI	Initial Test	.27	.0434
	Achievement Test	.26	.0458

[31] Russell, Charles, Classroom Tests.
[32] Garrett, H. E., Statistics in Psychology and Education, page 271.

SUMMARY

We have attempted in this experiment to:

A. Show how test elements and the final battery in playground baseball skill tests were chosen.

B. Establish validity of the single test elements and the battery with the criterion of judged success in the ability tested, by showing increase of accomplishment with successive ages and grades.

C. Determine reliability of test elements, and of the final battery.

D. Determine the rate of achievement for groups tested in this sport, by administering the Initial Test at the beginning of the season followed by the Achievement Test at the end of the season.

E. Show the relationship between playing regulations and knowledge of game situations, and the physical skills in the game of playground baseball.

POSSIBLE USE OF RESULTS

1. The value of the tests—skill and knowledge—as teaching tools has been demonstrated; as a means of motivating the practice of technique, as a means of providing the pupil with knowledge of his accomplishment, and as a basis for grades in physical education.

2. The tests have been valuable in demonstrating to the teacher that the physical education period should be not a play period, but an instructional period.

CONCLUSIONS

1. There is a decided need for reliable criteria for judging success in the various physical abilities.

2. Other, though non-conclusive, experiments have been carried on with the tests used in this study, and the authors are led to believe that test reliability and validity would have been greater had a smaller group of boys in a controlled situation been used for the experiment, instead of the large numbers of boys who were tested in practical teaching situations. We deem this a valuable experiment from the point of view that teachers in physical education are invariably faced with large groups of individuals and these tests developed and administered in such a situation are shown to be valid and reliable measures for group ratings.

3. The tests have been used successfully in two entirely different sections of the country. Although further experimentation in other parts of the country will be decidedly desirable, the fact still remains that the tests may be useful to groups in many localities from the standpoint of the qualities tested, use of simple equipment common to most school situations, and of the administrative economy of time.

4. Finally, the authors hope that this experiment may give others a point of departure into the field of scientific investigation in skill and knowledge tests in physical education.

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PLAYGROUND BASEBALL KNOWLEDGE TEST

Name..... Age.... Grade.... Date..... 19..

School..... Score: Omitted... Right... Wrong... Score...

The aim of this examination is to show what you have learned from your study of playground baseball.

The letters T and F have been placed before each statement given below. Draw a circle around the letter T if the statement is TRUE. Draw a circle around the letter F if the statement is FALSE or PARTIALLY FALSE. *Do not guess.* You will be penalized for each statement marked incorrectly by taking one point or credit from the number of statements marked correctly.

Examples are given below. Read them carefully and then proceed to answer the others in like manner.

T F There are ten players on a playground baseball team.
(Answer: Draw circle around T)

T F A regulation hard baseball is used in playing this game.
(Answer: Draw circle around F)

.....

T F 1. A strike is called on the batter when a legally delivered ball passes over home plate between the batter's shoulders and knees and is not struck at.

T F 2. A base runner is safe, if, in sliding to a base he move or dislodge it.

T F 3. It is better to encourage a player who has made a poor play than to fuss at him.

T F 4. As soon as the pitcher winds up to deliver the ball the runner may leave his base.

T F 5. The term 'passed ball' is applied when the catcher lets a ball go by, a batter being in the box.

T F 6. A baserunner may take one base on a passed ball.

T F 7. The batter is out if he steps from one box to the other when the pitcher is in his box ready to pitch.

T F 8. The pitcher throws a ball which strikes the ground before passing home plate. The batter starts to swing at the ball but checks himself before completing his swing. Ball bounds up hitting his bat and rolls into foul territory. Umpire calls "foul ball."
T F 9. A batsman may take part of his strikes in one box and part in the other.
T F 10. It is a good plan to argue with the umpire if you think he has made a wrong decision.
T F 11. A block ball is a grounder stopped by a shortstop.
T F 12. A ball well thrown is faster than a ball thrown poorly.
T F 13. In batting scoop the ball with the bat.
T F 14. A force play occurs when one player causes another to move from one base to another.
T F 15. In batting against speedy pitching, batter should move to the back of the box.
T F 16. On an illegally batted ball the batter is out.
T F 17. Batsman is out if he intentionally kicks or interferes with a ball he has just hit.
T F 18. Batsman is in his box in position to bat. Pitcher delivers the ball. Batsman seeing ball would hit him tries to dodge it. Ball hits the batsman's bat while the bat is over his shoulder. Ball goes fair. It is counted neither ball nor strike.
T F 19. The batter judges his distance from the plate by the length of his arms.
T F 20. Baserunner leaving his base on a pitched ball before it has reached or passed home plate shall be called out.
T F 21. A runner may slide to first base.
T F 22. The fielder stands on fair territory and in fielding a ball fumbles it so that it goes into foul territory. The umpire calls it a fair ball.
T F 23. The strong batter is less able to hit slow balls than the weak batter.
T F 24. If the pitcher drops the ball in the act of delivering, it is called "block ball."
T F 25. In catching fly balls above the waist the player should cup the hands, little fingers together, fingers pointing downward.
T F 26. Swing the bat in a horizontal plane in batting.
T F 27. Visiting teams should be treated by the home team as guests.
T F 28. The baserunner is out, if, after a fair hit he is touched with the ball by a fielder before he touches first base.
T F 29. The runner is out if first baseman holds the ball on first base before he gets there.
T F 30. A force play occurs by reason of the batsman becoming a baserunner.
T F 31. Runners are on first and third bases. The batter hits the ball over the right fielder's head. The runner from first must be touched out.
T F 32. Players in the field are required by rule to occupy exact positions.
T F 33. If a batter has one strike and two balls when the third out is made, he is the first batter up in the following inning.
T F 34. A baserunner may leave his base as soon as a batted ball touches the hands of a fielder and cannot be doubled out.
T F 35. The pitcher may give a snap or jerk to the ball as he delivers it to the batter.
T F 36. A right handed batter grasps the bat left hand on top of the right.
T F 37. A pitched ball which hits the batter is called a dead ball.
T F 38. A block ball is one handled by a person not engaged in the game.
T F 39. The baserunner is out if he interferes with a legally thrown ball.
T F 40. A right handed pitcher steps forward with his left foot as he throws the ball.

T F 41. The batsman is in his box in position to bat. The pitcher delivers the ball. The batsman seeing the ball would hit him, tries to dodge it. The ball hits the batsman's bat while it is over his shoulder. The ball goes fair. It is a fair hit.
T F 42. Right shortstop determines his position as he stands at pitcher's box, facing home.
T F 43. Batter finds his distance from the plate by grasping the bat and then tapping the center of home plate with his bat.
T F 44. Left shortstop should always back up plays to first and second base.
T F 45. Basemen should "meet the runner" with the ball.
T F 46. An illegally batted ball is one which settles on foul territory.
T F 47. Baserunners may not advance if the pitcher drops the ball in the act of delivery.
T F 48. In catching fly balls which go over the head, fielders should back up.
T F 49. The batter should be ready to hit every pitched ball.
T F 50. The only players required to occupy exact positions are the pitcher and catcher.
T F 51. A fielder on foul territory fumbles a ball which goes into fair territory. The umpire rules "fair ball."
T F 52. A time at bat is credited the batter if he is at bat when the third out is made.
T F 53. If there are less than two outs play to get the advance runner out.
T F 54. The batter should run only when he sees that he has hit a fair ball.
T F 55. An official's interpretation of a rule may be questioned, but never his judgment.
T F 56. In catching fly balls below the waist the player should cup the hands, little fingers together, fingers pointing downward.
T F 57. A dead ball is called neither a ball nor a strike.
T F 58. A baserunner should keep his base on a caught fly ball.
T F 59. Three fourths of the batter's back should be toward the pitcher as he stands at the plate.
T F 60. Batter shall be called out if he intentionally gets in the way of a pitched ball.
T F 61. If the ball is always started from the same position, thrown with the same speed, turned loose at the same point, the stride unvaried, it will always strike the same mark.
T F 62. To swing at balls high over the plate is the aim of all batters.
T F 63. A right handed batter grasps the bat right hand on top of left.
T F 64. The correct way to stop grounders is to kneel down, left side toward the ball, legs together, hands beside the legs to catch the ball.
T F 65. A baserunner may have a substitute if he so desires.
T F 66. Baserunners may advance one base on a block ball.
T F 67. A batter has two strikes and bunts the next ball. It is a safe hit.
T F 68. It is good playing to be able to fluster your opponents.
T F 69. A ball is determined fair or foul by where it strikes in the infield and where it rolls in the outfield.
T F 70. A pitched ball which hits the batter is called a "dead ball."
T F 71. The pitcher, while out of his box, may feint a throw to a base without a balk being called.
T F 72. A baserunner must not leave his base while the pitcher, standing in his box, holds the ball, or before it has reached or passed home plate.
T F 73. The pitcher should leave fly balls to other infielders, unless hit directly to him.

T F 74. One base is allowed on an overthrow to second base.
T F 75. The bat should be held with the trade mark up.
T F 76. Runners may advance one base without liability to be put out on an overthrow at first, third, or home.
T F 77. If the pitcher delivers an illegally pitched ball he shall be removed from the game.
T F 78. A dead ball shall be called a ball.
T F 79. To make a legal pitch the pitcher must begin his delivery with both feet on plate and then take only one step forward.
T F 80. The umpire calls "dead ball" and the runner shall be sent back to his base if he be hit by a batted ball before such ball is touched by a fielder.
T F 81. A fielder, on foul territory fumbles a ball which goes into fair territory. The umpire ruled a foul ball.
T F 82. The batter should run out every hit.
T F 83. The pitcher should field all balls hit between first and second base.
T F 84. The catcher should always make a target for the pitcher to throw at.
T F 85. The batsman is out on a caught foul tip on the third strike.
T F 86. Batters attempting to bunt are called out.
T F 87. A batted ball hits first base and bounds to the outfield in foul territory. It is a fair hit.
T F 88. If the batsman strikes at an illegally delivered ball it shall not be counted a strike.
T F 89. Should an inning close when a batter has had two balls and one strike, he is considered as having had a time at bat.
T F 90. It is called a block ball if a batted ball hits the umpire and baserunners may not advance.
T F 91. An illegally batted ball is one batted by the batsman not in his box.
T F 92. A team should forfeit the game if the "first string" men cannot play.
T F 93. A batted ball which hits the umpire is a dead ball.
T F 94. If the pitcher delivers an illegally pitched ball it shall be called a ball.
T F 95. On a batted ball which hits the umpire baserunners advance as though an error had been made.
T F 96. Swinging at balls too high over the plate is a common fault in batting.
T F 97. The baserunner is out if he be hit by a fair batted ball before such ball is touched by a fielder.
T F 98. A ball is determined fair or foul by where it rolls in the infield and where it strikes in the outfield.
T F 99. Fielders and short stops should back up the basemen.
T F 100. A baserunner who runs the bases in reverse order may be put out by touching him with the ball or by a baseman holding the ball on the base to which he is entitled.

A New Method of Scoring Chinning and Dipping

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Problem

To devise a method of scoring chinning and dipping so that the actual pull-up or push-up strength can be readily computed from the number of chins or dips and the body weight.

Method

Measurements were made of:

(1) total pull-up strength
(2) the number of times the individual could pull up
(3) his body weight

These data were studied by appropriate methods of statistical analysis.

Results

Formulae were evolved for:

(1) determining total strength from the number of chins completed and the body weight
(2) predicting chinning strength from the weight
(3) computing an index of condition

These results are summed up in the conclusions at the end of this article.

* * * *

Chinning and dipping have been used for many years as events in various achievement tests. They have, however, been recorded in raw scores; that is, in the actual number of chins and dips achieved by each participant.

Formerly, these two events—chinning on the horizontal bar and dipping on the parallel bars—were included in the Intercollegiate Strength Test (1).[1] In this test the numbers of chins and dips were added together and multiplied by one-tenth of the weight. This method of scoring is rather unsatisfactory for obvious reasons. Suppose the individual can chin but once. He has pulled up his whole body weight and clearly has the strength to do it. He is, however, credited with only one-tenth of that amount of strength. If, how-

[1] Numbers refer to bibliography at the end of this article.

ever, he is able to chin himself thirty times he is credited with strength corresponding to three times his body weight. This amount of strength is never found in one who can chin himself but thirty times.

More recently Dr. F. R. Rogers has included chinning and dipping in his revision of the Intercollegiate Strength Test in which he scores strength by the following formula: (2)

$$C+D(W/10+H-60)$$

This formula is an improvement upon the Intercollegiate formula in the medium levels of strength and in cases where the individual's height is over sixty inches. In the lower and upper levels of strength, however, it gives spuriously low or high results—in such, for instance, as the following: a boy who weighs sixty pounds and whose height is fifty-three inches is penalized by being credited with minus one for every chin or dip. In one group of three hundred eleven elementary school boys, all of whom made a reasonably high number of chins and dips, we found twenty cases in which there was either a minus score, or the individual was credited with a total strength of less than ten pounds. Although the Rogers' formula gives reasonably satisfactory correlations with high school groups, it is quite unfair to smaller boys and to the boy who can chin or dip less than ten or fifteen times, and it unduly rewards the boy who chins over fifteen or twenty times.

The revival of interest in the strength test, due to Dr. Rogers' admirable contribution and the above obvious difficulties in the scoring methods now in use, justifies a re-study of these events.

In the study outlined below the major research has been confined to chinning. The two events of chinning and dipping are, however, entirely analogous from the point of view of the work done, and the chinning score applied to dipping is quite satisfactory, as has been shown in a minor study not reported here.

There were two phases to this study. The first was a study of the intercorrelations between age, height, weight, and chinning. The second was an empirical study of the relationship of chinning strength to the same variable.

I

THE INTERCORRELATIONS OF CHINNING WITH AGE, HEIGHT, AND WEIGHT

The subjects in this phase of the study were four hundred twenty elementary school boys from the public schools of Detroit. These boys were all participants in the city-wide decathlon and were in the best three per cent of the elementary school athletes of the city. They were a selected group. The relatively low correlations cannot,

therefore, be attributed to lack of homogeneity of athletic experience.

The two-variable correlations between chinning and the three variables were as follows:

Chinning and age	.1064 ± .033
Chinning and height	—.1627 ± .032
Chinning and weight	—.0358 ± .033

Obviously, an increase in strength that goes with an increase in weight is counterbalanced by the fact of having to pull up the added weight, and with taller boys it has to be pulled farther. The partial correlations are as follows, using the first letters of the words as abbreviations:[3]

$$r_{CA.HW} = .2267 \pm .031$$
$$r_{CH.AW} = -.0485 \pm .033$$
$$r_{CW.AH} = -.0409 \pm .033$$
$$r_{CH.W} = -.1952 \pm .032$$
$$r_{CW.H} = .1149 \pm .033$$

It is quite apparent that height and weight have practically no correlation with number of chins, and that the multiple regression taken will not be very productive of results if the number of chins is correlated as the criterion variable.

Chinning alone gives a correlation of .3986 with track and field performance as represented by the Detroit decathlon.

The correlation of points in athletics with the following combination of variables is as follows:[4]

Points with:

(CxW),	$r = .5658$	$\eta = .6296$
(CxH),	$r = .4703$	$\eta = .5042$
(CxHxW),	$r = .5741$	$\eta = .6022$

(Probable errors have been omitted above; the number of cases used was four hundred twenty.)

Rogers' formula gave the higher correlation of, $r = .6019$ $\eta = .6347$.

From the above it seemed probable that some method of multiplying weight by the number of chins was advisable. This would give curvilinear regressions, a fact which suggested to us a different method of approach.

II

The second phase of this study was an experimental attack on the problem involving two separate studies.

Thirty-three boys taking summer school work in two of the Detroit public schools were selected for the first study because of

[3] The symbol "r" is the correlation coefficient of the two related variables. The method demands that the co-relationships of the two variables be a linear one, else the coefficient will be reduced in size.

[4] The symbol "η" or "eta" is the correlation ratio between the variables and does not assume rectilinearity of relationship. Hence the difference between these two, expressed as $N(\eta^2 - r^2)$, (where N is the number of cases) is used as a test for linearity. If this is not greater than 11.37, the relationship is considered as probably linear.

their interest in chinning. These boys had all just finished a period of intensive training for the Detroit decathlon, in which chinning is one of the events, and were therefore already in good condition; they improved practically not at all during the experiment. Each boy chinned the first day as many times as he could. The next day, two haversacks were hung one on either shoulder with the straps crossing in front of the chest and behind the back; each haversack contained a two-and-one-half pound weight, making five pounds in all. The boy then chinned again as many times as he could. This weight was increased five pounds daily until the boy could not chin once. The day after he had reached his limit he was again tested without weight to see whether or not there had been any increase in total chinning ability during the experiment; in general there was no increase, and in no case was there an increase of more than one chin.

The total pull-up strength was taken to be the individual's weight plus the weight of the haversacks that he just managed to pull up once.

Two ratios were then computed. The first was the ratio obtained by dividing the number of chins made with each five pounds of added weight by the total number of chins without weight. The second was the ratio obtained by dividing each five pounds of added weight by the total weight that stopped him. These ratios were then correlated for each weight. This correlation was —.9557, η=.9630. This almost perfectly rectilinear regression indicated that additional weight reduced the chinning ability an equal amount for each equal increase in weight. This part of the study demonstrated the important part played by fat weight in reducing the number of chins.

Using the total strength as computed above, the two-variable correlations were as follows: (S=total chinning strength)[4]

$$r_{SC} = .508$$
$$r_{SH} = .666$$
$$r_{SW} = .901$$
$$r_{CH} = .320$$
$$r_{CW} = .209$$
$$r_{HW} = .641$$

Using these factors, the multiple regression of these variables upon total strength is as follows:

$$\overline{S} = 1.299W + 2.280C - 26.49, \text{ and} \quad (1)$$
$$R = .964 \text{ (actual, not by formula)}$$
$$\overline{S} = .276H + 1.253W + 2.212C - 37.66, \text{ and}$$
$$R = .955 \text{ (actual, not by formula)} \quad (2)$$

The addition of height is apparently not a help. The first formula of the two is fairly satisfactory and can be used in all cases.

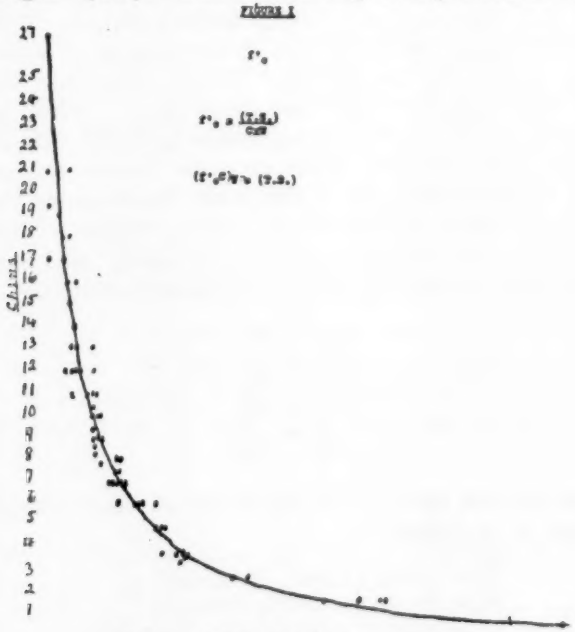
[4] We are indebted to Miss Josephine E. Manning and Miss Alice Caplan for these data.

A second group of subjects, with ages from twelve to forty-five, was from the Bronx Union Y.M.C.A., New York City. The data from this group were very satisfactory so far as accuracy and homogeneity of effort were concerned.

The "total pull-up strength" of this group was ascertained in a different manner from that of the Detroit group. The subjects tested had a belt fastened around the waist which was attached in front to a spring dynamometer which was in turn fastened to the floor by pulleys. The individual took the position of hanging from the bar ready to chin and the slack was taken up in the rope attached to the dynamometer. The man then attempted to chin or pull up. His total pull-up strength was taken as his weight plus the weight of the dynamometer and the amount registered on the dynamometer.

After a short rest the individual chinned as many times as he could with no additional weight or resistance. His weight and height and the length of his arm were taken.

Several formulae were computed for this group. These are given below, together with the correlation between the whole formula and "total strength" (TS). This relationship is expressed as "R."



$$TS = 1.77W + 3.42C - 46 \quad (3)$$
$$(R = .9337)$$

Two other formulae were tried as follows:

$$TS = .16WC - .053HC - 13C - 134 \quad (4)$$
$$(R = .880)$$

This is not as good as that above.

$$TS = f_e(1.03W+3.71H-4.45)-405 \quad (5)$$
$$(R = .917)$$

(For the meaning of "f_e" see below, formula number (6)).

This is still not as highly correlated with total strength as are formulae (1) and (3), hence it can be ignored.

Another method of study was now attempted. The following formula was devised:

$$f_e = TS/CW \quad (6)$$

in which f_e=a function of chins, TS=actual total pull-up strength, C=chins, W=weight.

When this function was plotted against the number of chins a markedly curvilinear regression was obtained (see Figure I). A curve fitted to this gave the following results:[8]

For the Detroit data, the formula was:

$$f_e = C^{-.875} \quad (7)$$

Hence total strength $= C^{.125}W$ (8)
$(R = .9434)$

For the New York group, the formula was:

$$f_e = 1.27C^{-.867} \quad (9)$$

Hence total strength $= 1.27C^{.133}W$ (10)
$(R = .9150)$

A third group, all Y.M.C.A. physical directors, was tested after the manner of the New York group, and gave results as follows:

$$f_e = 1.223C^{-.875} \quad (11)$$

Total strength $= 1.223C^{.125}W$ (12)

We believe that the Detroit and the New York data are about equally reliable. It will be noticed that there is one difference in the formulae, that of the constant term. The difference in the *exponent* is within the limits of sampling error. Since the New York study had the larger number of cases (New York seventy-seven, Detroit twenty-one) we selected that of the New York group, (formula 10). The difference in the constant is undoubtedly explained as follows: in the Detroit group, the individual *pulled all the way up*. In the New York group he pulled only about one-fourth of the way as the dynamometer stopped him at that point. After one pulls about half way up, the pectoralis major muscle stops its action, and the latissimus dorsi, teres major, biceps, and brachialis progressively pull at a more acute angle. Hence the strength is less at this point. One might, therefore, choose either formula. We prefer the New York formula and multiple regression formula (3). The difference in the

[8] The method used in fitting this curve was an empirical one. When the logarithms of f_e were plotted against the logarithms of frequency of chins, the curve was transposed into a straight line. The "best fitting" line through these points, obtained by fitting a thread to the data by eye, was then drawn and the formula computed by the usual method of simultaneous equations and turned into the usual anti-log forms. See Running, T. R., Empirical Formulas, John Wiley and Sons, Inc., New York. 1917, p. 42.

multiple correlations is undoubtedly due to sampling errors, and either can be used.

When formula (10) is computed for each number of chins we have values as given in Tables I and II. When computations are made from formula (3) we have values as given in Table III. (See tables at the end of this paper.)

The effects of height, of age, and of weight, were studied separately on the New York group. The actual total strength minus the computed total strength was correlated with height. The correlation was —.1012 (59 cases). The correlation with length of arm was —.0949. The correlation with age was —.0014. The Probable Error in each case was approximately as large or larger than the correlation; hence with this formula (10) age and height may be ignored.[6]

Using this formula and applying it to both chinning and dipping the following results were obtained: Chinning with track and field performance (the sum of the hundred-yard dash, standing broad jump, shot put, and running high jump, scored in points), r=.7512. Chinning and dipping correlated against 8A+1½H+W, r=.8644. (4) Chinning against total strength in Intercollegiate Strength Test but with chinning and dipping scored by our formula, r=.8960. With another group chinning and dipping combined, r=.8845.

The addition of grips does not improve the correlation enough to justify the extra trouble. For the high school group[7] the correlation of track and field with chinning and dipping, r=.7156; with the best combination of chinning, dipping, and grips,

$$.5 \text{ grips}+2.51C+2.51D+108 \quad (R = .7168) \tag{13}$$

As a short form of strength test chinning and dipping scored separately and added together are as satisfactory as the same with the addition of grips. We have found the best combination of grips, chinning, and dipping, to produce total bodily strength to be as follows:[8]

$$3.27 \text{ grips}+1.62C+1.62D+66 \quad (R = .9060) \tag{14}$$

This is not enough greater than the correlations of chinning and dipping alone with total strength (r=.8845) to justify the additional administration.

The "total strength" computed by formula (10) was correlated with the other events of the Detroit decathlon. The correlations with the events listed were as follows: (number of cases, 295)

[6] In the computation for age, ages over twenty were omitted.
[7] Data by courtesy of H. Leigh MacCurdy of Groton High School, Yonkers, N. Y.
[8] Whenever both chins and dips are scored together, they must first be scored separately and then added together.

100 yards	r=.5584
Running high jump	r=.5003
Standing broad jump	r=.5658
Running broad jump	r=.4412
Standing hop-step-jump	r=.5190
Running hop-step-jump	r=.5185
Shot put	r=.6709
Overhead shot	r=.6538
Dips (floor)	r=.4195
Sit-up	r=.3140

Conclusions

Two formulae have been proposed for the scoring of chinning and dipping, either of which produces relatively satisfactory results.

The two methods give results that differ but little in the usual ranges. Either is satisfactory, and either can be computed by table. Formula (3)

$$TS = 1.77W + 3.42C - 46$$

can be computed easily arithmetically, while (10)

$$TS = 1.27C^{.133}W$$

requires logarithms for ranges outside those given in Tables I and II. Formula (3) is, moreover, easier to compute. Formula (10) can be readily computed from the tables given in the text. Either formula gives with relative accuracy the strength of the individual which correlates very highly with his total strength and is more significant than total strength as a predictor of athletic ability.[9]

Chinning and dipping, or chinning alone, scored in this way can be used as a classifying device which seems to be as adequate on the whole as the total strength test.[10] An admirable account of the uses of such tests in the administration of physical education is given elsewhere. (3)

If one wishes to compute an index of what chinning strength might be expected from any given weight, the formula below will be useful.

$$\text{Strength (chins } \textit{or} \text{ dips) predicted} = 1.95W - 34 \qquad (15)$$

This divided into the *actual* pull-up strength as computed by either formula gives an *index of condition.* This should be interpreted cautiously in over-weight boys. If chins plus dips are used, the required norm will be given by:

$$\text{Strength (chins and dips) predicted} = 2.85W + 33 \qquad (16)$$

BIBLIOGRAPHY

1. Rogers, F. R.—Tests and Measurements Programs in the Redirection of Physical Education. Teachers College, 1927, p. ix.
2. Ibid. p. 53.
3. Ibid. pp. 115—145.

[9] Total strength by Intercollegiate formula but with our scoring of chinning and dipping correlates with track and field athletics, r=.6403.

[10] We should like to add what should be quite obvious—namely, that chinning and dipping are quite useless as a classifying device unless the individual chins and dips to the limit. Every encouragement should be given him to do so.

4. McCloy, C. H.—Athletic Handicapping by Age, Height, and Weight. American Physical Education Review; Vol. 32, No. 9, November, 1927.

To use Table I, multiply the weight of the individual by the constant corresponding to the number of chins.

TABLE I

Function X Chins

No. of Chins (or Dips)	Multiply this by Weight	No. of Chins (or Dips)	Multiply this by Weight
1.	1.2697	21.	1.9047
2.	1.3924	22.	1.9162
3.	1.4697	23.	1.9274
4.	1.5268	24.	1.9369
5.	1.5730	25.	1.9500
6.	1.6110	26.	1.9578
7.	1.6450	27.	1.9683
8.	1.6744	28.	1.9768
9.	1.7010	29.	1.9865
10.	1.7250	30.	1.9950
11.	1.7468	31.	2.0057
12.	1.7664	32.	2.0128
13.	1.7862	33.	2.0229
14.	1.8032	34.	2.0298
15.	1.8210	35.	2.0370
16.	1.8352	36.	2.0448
17.	1.8513	37.	2.0535
18.	1.8648	38.	2.0596
19.	1.8741	39.	2.0670
20.	1.8900	40.	2.0760

Table II has been computed to facilitate this computation for those who add more rapidly than they multiply. In this table the numbers at the extreme left represent the number of chins, and the figures in the other columns represent the f_cC multiplied by the number at the head of the column. Suppose a boy who weighs 129 pounds chins eight times. One hundred twenty-nine pounds is made up of one hundred pounds plus twenty pounds plus nine pounds; therefore, to determine the total strength corresponding to this weight, first find out the total strength for each part of the weight and then add them together. Proceed as follows: find the number of chins in the first column, then to the right of this number (eight in this case) under column 1 will be found 1.6744. Multiply this by 100, which will give you 167.44. Then under 2 will be found 3.3488. Multiply this by 10 and the result is 33.488. Under 9 is 15.0696. Add these together as follows:

100x 1.6744 = 167.44
10x 3.3488 = 33.49
1x15.0696 = 15.07
Total pull-up strength = 217.00

TABLE II

A Table to Facilitate Computation by Formula 10.

No. of chins	1	2	3	4	5	6	7	8	9
1.	1.2697	2.5394	3.8091	5.0788	6.3485	7.6182	8.8879	10.1576	11.4273
2.	1.3924	2.7848	4.1772	5.5696	6.9620	8.3544	9.7468	11.1392	12.5316
3.	1.4697	2.9394	4.4091	5.8788	7.3485	8.8182	10.2879	11.7576	13.2273
4.	1.5268	3.0536	4.5804	6.1072	7.6340	9.1608	10.6876	12.2144	13.7412
5.	1.5730	3.1460	4.7190	6.2920	7.8650	9.4380	11.0110	12.5840	14.1570
6.	1.6110	3.2220	4.8330	6.4440	8.0550	9.6660	11.2770	12.8880	14.4990
7.	1.6450	3.2900	4.9350	6.5800	8.2250	9.8700	11.5150	13.1600	14.8050
8.	1.6744	3.3488	5.0232	6.6976	8.3720	10.0464	11.7208	13.3952	15.0696
9.	1.7010	3.4020	5.1030	6.8040	8.5050	10.2060	11.9070	13.6080	15.3090
10.	1.7250	3.4500	5.1750	6.9000	8.6250	10.3500	12.0750	13.8000	15.5250
11.	1.7468	3.4936	5.2404	6.9872	8.7340	10.4808	12.2276	13.9744	15.7212
12.	1.7664	3.5328	5.2992	7.0656	8.8320	10.5984	12.3648	14.1312	15.8976
13.	1.7862	3.5724	5.3586	7.1448	8.9310	10.7172	12.5034	14.2896	16.0758
14.	1.8032	3.6064	5.4096	7.2128	9.0160	10.8192	12.6224	14.4256	16.2288
15.	1.8210	3.6420	5.4630	7.2840	9.1050	10.9260	12.7470	14.5680	16.3890
16.	1.8352	3.6704	5.5056	7.3408	9.1760	11.0112	12.8464	14.6816	16.5168
17.	1.8513	3.7026	5.5539	7.4052	9.2565	11.1078	12.9591	14.8104	16.6617
18.	1.8648	3.7296	5.5944	7.4592	9.3240	11.1888	13.0536	14.9184	16.7832
19.	1.8741	3.7482	5.6223	7.4964	9.3705	11.2446	13.1187	14.9928	16.8669
20.	1.8900	3.7800	5.6700	7.5600	9.4500	11.3400	13.2300	15.1200	17.0100
21.	1.9047	3.8094	5.7141	7.6188	9.5235	11.4282	13.3329	15.2376	17.1423
22.	1.9162	3.8324	5.7486	7.6648	9.5810	11.4972	13.4134	15.3296	17.2458
23.	1.9274	3.8548	5.7822	7.7096	9.6370	11.5644	13.4918	15.4192	17.3466
24.	1.9369	3.8738	5.8107	7.7476	9.6845	11.6214	13.5583	15.4952	17.4321
25.	1.9500	3.9000	5.8500	7.8000	9.7500	11.7000	13.6500	15.6000	17.5500
26.	1.9578	3.9156	5.8734	7.8312	9.7890	11.7468	13.7046	15.6624	17.6202
27.	1.9683	3.9366	5.9049	7.8732	9.8415	11.8098	13.7781	15.7464	17.7147
28.	1.9768	3.9536	5.9304	7.9072	9.8840	11.8608	13.8376	15.8144	17.7912
29.	1.9865	3.9730	5.9595	7.9460	9.9325	11.9190	13.9055	15.8920	17.8785
30.	1.9950	3.9900	5.9850	7.9800	9.9750	11.9700	13.9650	15.9600	17.9550
31.	2.0057	4.0114	6.0171	8.0228	10.0285	12.0342	14.0399	16.0456	18.0513
32.	2.0128	4.0256	6.0384	8.0512	10.0640	12.0768	14.0896	16.1024	18.1152
33.	2.0229	4.0458	6.0687	8.0916	10.1145	12.1374	14.1603	16.1832	18.2061
34.	2.0298	4.0596	6.0894	8.1192	10.1490	12.1788	14.2086	16.2384	18.2682
35.	2.0370	4.0740	6.1110	8.1480	10.1850	12.2220	14.2590	16.2960	18.3330
36.	2.0448	4.0896	6.1344	8.1792	10.2240	12.2688	14.3136	16.3584	18.4032
37.	2.0535	4.1070	6.1605	8.2140	10.2675	12.3210	14.3745	16.4280	18.4815
38.	2.0596	4.1192	6.1788	8.2384	10.2980	12.3576	14.4172	16.4768	18.5364
39.	2.0670	4.1340	6.2010	8.2680	10.3350	12.4020	14.4690	16.5360	18.6030
40.	2.0760	4.1520	6.2280	8.3040	10.3800	12.4560	14.5320	16.6080	18.6840

Table III is arranged to facilitate the rapid computation of formula (3). In section A are found values for [1.77 (weight)—46]. In section B are found values for [3.42 (chins)]. The two values, when added, give the total pull-up strength. Each section is arranged with the tens values in the extreme left-hand column. The units are indicated at the top of the table. Any given value will be found at the intersection of the *row* corresponding to the *tens* value, and the *column* under the *units* value.

To illustrate, let us compute the total pull-up strength for a boy weighing 146 pounds who chins twelve times. In section A, in the extreme left hand column will be found 140. Following the *row* to the right to the *column* under 6 (at the top of the page) will be found the number 205.3.

In section B, in the extreme left hand column will be found 10. Following this *row* to the right, in the *column* under 2 (at the top) will be found the number 41.0. Adding these numbers, 205.3 and 41.0, we get the *total pull-up strength*, 246.3. Any decimal in the result under .5 should be dropped, and any of .5 or over should become the next higher unit.

A little time spent in practicing the computation of total strength from a few weights and numbers of chins will quickly familiarize one with the use of this table.

TABLE III

This table gives values for formula 3.

A. *Weight.* Values for [1.77 (weight)—46]

	0	1	2	3	4	5	6	7	8	9
50	42.5	44.3	46.0	47.8	49.6	51.4	53.1	54.9	56.7	58.4
60	60.2	62.0	63.7	65.5	67.3	69.1	70.8	72.6	74.4	76.1
70	77.9	79.7	81.4	83.2	85.0	86.8	88.5	90.3	92.1	93.8
80	95.6	97.4	99.1	100.9	102.7	104.5	106.2	108.0	109.8	111.5
90	113.3	115.1	116.8	118.6	120.4	122.2	123.9	125.7	127.5	129.2
100	131.0	132.8	134.5	136.3	138.1	139.9	141.6	143.4	145.2	146.9
110	148.7	150.5	152.2	154.0	155.8	157.6	159.3	161.1	162.9	164.6
120	166.4	168.2	169.9	171.7	173.5	175.3	177.0	178.8	180.6	182.3
130	184.1	185.9	187.6	189.4	191.2	193.0	194.7	196.5	198.3	200.0
140	201.8	203.6	205.3	207.1	208.9	210.7	212.4	214.2	216.0	217.7
150	219.5	221.3	223.0	224.8	226.6	228.4	230.1	231.9	233.7	235.4
160	237.2	239.0	240.7	242.5	244.3	246.1	247.8	249.6	251.4	253.1
170	254.9	256.7	258.4	260.2	262.0	263.8	265.5	267.3	269.1	270.8
180	272.6	274.4	276.1	277.9	279.7	281.5	283.2	285.0	286.8	288.5
190	290.3	292.1	293.8	295.6	297.4	299.2	300.9	302.7	304.5	306.2
200	308.0	309.8	311.5	313.3	315.1	316.9	318.6	320.4	322.2	323.9

B. *Chinning.* Values for [3.42 (chins)]

	0	1	2	3	4	5	6	7	8	9
0	0.	3.4	6.8	10.3	13.7	17.1	20.5	23.9	27.4	30.8
10	34.2	37.6	41.0	44.5	47.9	51.3	54.7	58.1	61.6	65.0
20	68.4	71.8	75.2	78.7	82.1	85.5	88.9	92.3	95.8	99.2
30	102.6	106.0	109.4	112.9	116.3	119.7	123.1	126.5	130.0	133.4

Table IV is arranged to facilitate the rapid computation of formula (15), the formula for determining "normal" (or average) chinning or dipping strength. It is used in the same manner as section A of Table III. Thus, if the individual weighs 134 lbs. the normal value will be found to the right of the 130 figure in the left hand column, and under the column headed 4. The value is 227.

To determine the *index of condition*, divide this value into that of *actual* chinning (or dipping) strength. If *both* chinning and dipping strength are used, multiply the number obtained in Table IV by two.

TABLE IV

Table for Computing Normal Chinning Strength
Values for 1.95 wt.—34

Weight	0	1	2	3	4	5	6	7	8	9
70	103	105	106	108	110	112	114	116	118	120
80	122	124	126	128	130	132	134	136	138	140
90	142	144	145	147	149	151	153	155	157	159
100	161	163	165	167	169	171	173	175	177	179
110	181	183	185	187	188	190	192	194	196	198
120	200	202	204	206	208	210	212	214	216	218
130	220	222	224	225	227	229	231	233	235	237
140	239	241	243	245	247	249	251	253	255	257
150	259	261	262	264	266	268	270	272	274	276
160	278	280	282	284	286	288	290	292	294	296
170	298	300	301	303	305	307	309	311	313	315
180	317	319	321	323	325	327	329	331	333	335
190	337	339	340	342	344	346	348	350	352	354
200	356	358	360	362	364	366	368	370	372	374
210	376	377	379	381	383	385	387	389	391	393
220	395	397	399	401	403	405	407	409	411	413
230	415	416	418	420	422	424	426	428	430	432

BOOK REVIEWS

PHYSICAL EDUCATION IN AMERICA. T. Alida Bijhouwer. Published in Holland, 1931, 311 pp.

Miss Bijhouwer spent some time in the United States studying, observing, and teaching, then returned to Holland. In this interesting book, she gives a concise and unprejudiced description of numerous phases of physical education work as she found it in the United States. This is the first book to be published in Dutch on the subject of health and physical education.

Realizing the tremendous difference between Holland and the United States in size, climate, population, and educational methods, Miss Bijhouwer does not attempt to make comparisons but rather states facts and conditions as she sees them, hoping that her work will stimulate her fellow-countrymen to further study along physical and health education lines with a view to adapting such phases of our work as may be organized and successfully promoted in Holland.

In the preface, Miss Bijhouwer states general educational principles and problems, such as density of population, rural and urban situations, nationalities, legislation, curricula, teacher-training, etc. Her book covers briefly the history of physical education and a discussion of physical and health education as she found them carried on in various types of institutions in the United States, including schools from the nursery school through colleges. She includes the subjects of buildings, fields, equipment, programs, organization and administration, school spirit, statistics, and even describes some games that appeal to her as easily adaptable and little known in Holland.

One chapter of her book deals with physical education in the nursery, kindergarten and elementary schools, another with physical education in junior and senior high schools; another covers physical education in junior and senior colleges; still another deals with professional training in physical education in various types of schools and colleges. She also discusses public recreation, playgrounds, play days, and the camping movement.

Miss Bijhouwer, through her intensive study and keen observation while in the United States, has made a very valuable contribution. Her book is being well received in Holland and will undoubtedly be of great help in promoting better health and physical education work in her country.

Helen C. Paulison,
Assistant to the Editor, Journal of Health and Physical Education.

HEALTH EDUCATION. The Chicago Principals' Club Fifth Yearbook, edited by Christine Bednar. The Chicago Principals' Club, Chicago, June, 1930. 252 pp.

Health education has rapidly become one of the most important "subjects" in the public school curriculum. One of the first concerns of Departments of Education, Superintendents, Principals and other administrators seems to be the development of a Course of Study or outline for teacher use. Whatever might be the shortcomings of this practice, supplying teachers in service with materials and methods for carrying out any new plan seems essential. This has been the particular task of the Principals' Club in Chicago.

Health Education "has been planned to be used as a teachers' handbook to supplement the Course of Study in Health Education for the Chicago

schools. There is much excellent material of a general nature which cannot be included in a course of study which must necessarily be limited in volume because of its definite technical function. We have tried to include such material in the Yearbook in the belief that the broader the background we, as teachers, have the better teachers we will be."

The book is a compilation of practices and procedures in health education contributed by various members of the teaching staff. It begins with a brief historical account of the development of health education in the public schools. A description of interesting practices in some of the elementary schools follows. The pioneer work at Scanlon-Gompers with the present emphasis on cleanliness shows what the development of a school morale through the creation of a health consciousness can do. At Morrill School an interesting group test for hearing has been carried on successfully. Rogers School displayed special artistic ability and group cooperation in the decoration and care of the health room.

Special classes are maintained for the handicapped. Through the cooperation of the Municipal Tuberculosis Sanitarium, the unusual opportunity of giving ultra-violet ray treatments to certain of the handicapped at Spalding School has proved most successful. Muscle re-education, special provision for the anemic, the cardiacs, the deaf, the blind, and the hard-of-hearing, is provided through the United Charities and other social agencies. Camp, bedside instruction in hospitals, and similar services are available. There are many cooperating agencies in the Chicago Plan.

To insure more efficient health teaching, a questionnaire study has been made of the training of teachers in service. In general teachers demanded more knowledge and methods of presenting materials to the children. "Teachers are interested in this work and would like opportunities for further instruction and practical advice on health now that this subject has been given a prominent place in the curriculum." Hence, the development of a course of study based on experiments in the Parker Practice School, and the compilation of materials in this book. The Chicago schools have felt a need and the Principals' Club has proceeded to satisfy it.

Since two-thirds of the teachers in the elementary schools of Chicago are prepared in the Chicago Normal College, a re-organization of the Normal College curriculum was inevitable. This has been done with three main objectives in view: (1) "To train the individual student to care intelligently for her own health"; (2) "To teach her how to guard the health of the children in her charge"; and (3) "To give her sufficient knowledge of the laws of health and of methods of presenting them that she may train her future pupils in habits of correct living and help them to gain a scientific foundation upon which to build health judgments of their own."

This is a large order. By way of fulfilling it, the Normal College has set up certain courses in science and physical education. During the three-year course, 280 hours are spent in science. This includes courses in chemistry, physiology, nutrition, bacteriology and public health agencies, microbiology and home sanitation, and 30 hours in mental hygiene. In the physical education department, 60 hours are spent in Health Habits of the student—a freshman course. One hundred seventy hours are spent in team games, schoolroom plays and games, dancing, and swimming. In addition, 30 hours are devoted to methods of teaching physical education in elementary grades and 20 hours of training are given in first aid.

Opportunities for training teachers in service are offered through promotion courses, distribution of literature, lectures, talks, demonstrations, and generally encouraging teachers to take advantage of opportunities offered.

Much of this encouragement comes through the principal.

An outline of the Chicago Course of Study is included, followed by an interesting chapter of helpful devices and lesson plans for teaching health.

From a more critical point of view, perhaps much of the material included in these two chapters could be questioned as to value. In the development of health procedures and devices for teaching, it is sometimes difficult to keep in mind the limitations of most school environments for real practice in the habits we wish to establish in the child. Enthusiasm for the thing we are doing sometimes prompts us to put undue emphasis on such devices as posters, dramatizations, weighing and measuring, making charts, poems, rhymes, jingles, health stories, and the keeping of health rules. When these devices are correlated and focused upon the solution of some problem or project that holds real interest for the child, then effective health teaching results.

A discussion of mental hygiene, safety education, physical education, health tests, and the importance of a wholesome school environment for health teaching concludes a very worthwhile contribution to our literature on health education. Of particular value, teachers in service should find the list of sources and available materials included in the last two chapters.

The Chicago Principals' Club has made a very serious effort to make health education a vital part of the public school curriculum. Anyone interested in health instruction, regardless of grade level, should find this publication interesting and valuable.

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THE TECHNIQUE OF RESEARCH IN EDUCATION. Claude C. Crawford, Ph.D., Professor of Education, University of Southern California, Los Angeles. 1928.

With the increasing number of graduate students in schools of education, the need for ways and means of acquainting them with necessary techniques and procedures of research increases annually. It is well and good to talk of research in education or physical education, but it might be more profitable to inquire into the techniques necessary to carry on research first. Much sorrow and labor could be saved if ambitious graduate students were properly trained in the methods of thesis writing and the techniques of educational investigation before attempting too ambitious a study.

To help prepare the student to accomplish this training is the chief purpose of this book. "The Technique of Research in Education" is the result of the writer's conviction that the progress of research might be accelerated if those who engage in it possessed a little more training in its technique. Such training as graduate students get in research technique is largely of an incidental nature, except in the case of a few who take courses in statistical or historical methods.

The book has been planned as a text-book for a course in which direct preparation in the techniques of research might be given. The content grew out of difficulties encountered by graduate students. The research worker must be thoroughly acquainted with his tools before he can expect to accomplish any constructive study.

Before any educational research can be attempted, it is apparent that a problem must be selected. This necessitates a somewhat thorough acquaintance with the general field of research. Dr. Crawford has an excellent chapter on "Selecting Problems" which is practical and filled with "common sense" advice. "It is well to choose a problem with a forward look, thinking of a whole career rather than the immediate necessity of meeting a degree requirement. To fail to consider the relation of a research undertaking to one's future professional career is comparable to studying for an examination with no intention of remem-

bering anything after it has been passed."

Various methods of dealing with the problem, after it is selected and defined, follow. The experimental technique is called the "backbone of science." Emphasis is placed on the importance of planning before gathering data. Many educational crimes have been committed in the name of "scientific method" and "science." The suggestions given in this chapter should help the inexperienced to avoid many pit-falls.

The historical method with emphasis on the importance of establishing facts; the case study to learn what is unique rather than what is common about situations or people; the interview; the questionnaire and statistics as applied to education, are all discussed clearly with many helpful suggestions for developing these techniques.

Crawford includes a chapter on what he terms the "psychological technique," which really is a discussion of the application of science as a method, to the study of psychology. How to make the school survey, the importance of trained observation as a technique, job analysis and curriculum making, complete a very readable discussion of various educational techniques.

What is particularly significant in the discussion of these various techniques is the author's point of view. One feels that he has a thorough understanding of the student mind and the practical problems encountered in learning research. The application of this understanding to the subject matter resulted in a usable book—one which the graduate student may read, understand and apply, rather than putting it aside with the firm conviction that all this theory about techniques is in no way related to his immediate problem of getting a thesis done!

In the discussion of the "interview technique," the psychology of getting along with people is clearly applied. "A good slogan to keep in mind is that 'the person interviewed is always right,' "—a bit of homely philosophy from the country store-keeper, "The customer is always right," applied in a scientific age! Again the ethics and diplomacy suggested in observation are an application of this psychology.

The closing chapters contain an excellent discussion of the analysis and interpretation of data, with pertinent suggestions for writing the report or thesis. It is one task to collect data; it is another, and far more important task to analyze and interpret that data meaningfully. Too often the student becomes so involved in the collection of facts, the tabulation of data, the drawing of diagrams, the plotting of graphs and tables that he forgets that after all, this activity is merely the employment of tools.

"Mere juggling of figures or tabulating facts is not research. Research involves a considerable amount of reflective thinking. Drawing conclusions is a thoughtful rather than a mechanical process, and cannot be done in a mechanical way. Nor can it be done hastily. It requires a maturity of consideration which necessitates a long period of time while it is in process. Research workers have been known to find facts with infinite care and precision and then to explain them with the utmost recklessness, giving no reasons for their conclusions or giving as reasons for them what could be at best mere guessing. Certainly the finishing stages of an investigation deserve to be done with as great care as the other parts, yet they are frequently done with the least care of all."

Research is a patient process. The spirit of science, "the exacting master" should rule. There must be thought — critical, analytical thought. The student must be willing to know much about his field before attempting little. It takes time. In our academic rush to scale the professional ladder much creative work is lost. There must be standards by which to judge the product; there must be tools with which to work; there must be a pa-

tient willingness to evaluate one's own effort and to be satisfied only with the best of which one is capable. This is the underlying philosophy which seems to permeate "The Technique of Research." A truly worthwhile book.

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EXPRESSION-GYMNASTICS. Dr. Rudolf Bode. Translated from the German by Sonya Forthal and Elizabeth Waterman. A. S. Barnes & Co., 1931. 161 pp. $2.00.

Three years ago Mr. Hinrich Medau, the Director of the Bode School in Munich, came to Columbia University for the Summer Session. At the end of his course he said, "I have tried to give you some of the underlying theories of this Bode work and to indicate methods of development and types of exercises. Take of it what you can and adapt it to what you are doing, if it applies. Do not attempt to take it over in body; it is essentially German and applies to the needs and interests of our people. You have a different situation. All that I ask is that you give it careful thought and then experiment with it honestly and intelligently."

Much of the same could be said of this recent translation of Dr. Bode's book. It is a straightforward presentation of his ideas and his methods of attack. Dr. Bode is no missionary who says, "This is the new truth which shall revolutionize all thought and all practice." Rather does he seem to say, "This is essentially German. It is an inevitable development from the standpoint of historical background and careful present investigation. It has been studied and investigated from all angles: history, psychology, physiology, art, and religion all contribute to the conclusions presented. Here it is!" His opening quotation indicates this point of view clearly:

"The farther the search, the deeper the problems become. He who does not fear these problems but goes boldly at them gains knowledge and confidence."—Goethe.

Before going into the book seriously there must be three important considerations. Perhaps they should be considered as warnings to the casual American reader. First of all, there is much more thorough analysis than we are accustomed to. The German is always much more critical and painstaking in his investigations than we are apt to be. It takes him a long time to arrive at a conclusion. But once he has examined an idea from all angles and it seems to pass the test of such scrutiny, it becomes unalterable truth. This is why the assertions are so positive and boldly confident. The second German characteristic is the inclusion of much discussion of mysticism. There are pages dealing with "the essence of the mind and soul" and the "organic unity of manifold capacities of soul, mind, and body." If at times the text becomes slightly foggy, it is only fair to ask whether it may not be our own materialistic point of view, or perhaps our lack of understanding of Teutonic spirituality. The third consideration is the obvious fact that the book is a translation. In the foreword the translators state that they wish to retain "as nearly as possible in English, the style and character of Rudolf Bode." This is laudable but peculiarly difficult when there is so much of technical and professional terminology. The very term "Expression-Gymnastics" is misleading because the German implies so much more in the word "gymnastics" than we understand. There is a looseness in the use of the word "instinct" at times. From the standpoint of physical education nomenclature it is difficult to understand the exact meaning of such terms as "controlled movements," "locked movements," and "natural movements," as they are used in the text. Parts of the book are beautifully done but there are sections which are heavy and rather awkward and this may be due to the difficulty of exact translation.

The book consists of two large di-

visions. The first is entitled "Theory" and deals with the underlying bases of physical education as found in the arts and sciences. The second part is entitled "Practice" and consists of a series of exercises arranged to show the scope of Expression-Gymnastics and to indicate methods of development. There are frequent illustrations which are particularly useful in connection with the exercises.

In the rather prolonged chapter on the "Psychology of Physical Education" there is much reference to the simple natural teachings of Pestalozzi. In the beginning this significant quotation is given:

"The storm and strain of the formative period of Physical Education could have been spared the physical educators if they had only remembered Pestalozzi."—Thiele.

The following statements explain more in detail:

"In this everlasting striving for movement, seen in the play of the child with its own body, nature has furnished the real starting point for Physical Education."—Pestalozzi.

"Rhythm is an essential element of everything living. Since the living has a continuous character, rhythm is also continuous."

"The will . . . may be the cause of arrhythm (disconnected movement)."

"Each movement is natural in so far as it arises out of the life unity."

The influence of the Gestalt psychology is also evident. The principle of "Totality of Movement" and the belief in the "essential harmony of organic unity" are explained in elaborate detail.

"Emotional experience is total and reacts on the whole organism. Our emotional life reacts especially on total movements of the body."

There is no beating about the bush concerning method.

"In order to avoid misunderstanding, let us say from the start: *Expression-Gymnastics has a formal and not a material character.* There is no expression of definite feelings like sorrow or joy, or patternlike forms of movement for any feeling; all this is the task of a school of dramatics. There is one aim in view, namely, to bring the organism into a psychophysical condition which will make possible a free development and a complete control of its motor powers. *Method* of Expression-Gymnastics is to formulate definite natural movements through which this purpose may be attained."

It is interesting to find Dr. Bode taking very definite stands on several potent professional questions from the physical education angle.

1) What is the significance of this work from the standpoint of the dance?

"Two types of expression are discovered in movement, the extremes of which are on the one hand, irresistible motion, the dance; on the other hand, controlled goal-aiming movement, sport. The real dance is not emphasized or refined sport but entirely opposite from it. Between sport and the dance is Expression-Gymnastics, for it contains both components, the stimulation of feeling and the volitional act."

"The Greeks in their great wisdom had also this twofold division (power and movement). In their games they released and controlled energy, in the Chorus of the Tragedy they released and controlled movement. While their games are closely related to our sport activities, we are just finding an equivalent for their tragic choruses. It is the development of both disciplines, sport and the rhythm of movement which is able to create that deep relation existing between Physical Education and the plastic and dramatic art."

2) What is the attitude toward record-making in athletics?

"In all sport records the rhythmic soul is sacrificed to our ego-centric purpose . . . Let us emphasize that we do not disapprove of the record itself, but we disapprove of a Physical Education solely for the sake of the record, and the placing of emphasis only on the highest score."

3) What place has anatomical and

physiological research in this work?

"Only artificial movements are constructed by physiological and anatomical research."

"The dead body, even if coordinated minutely, may be divided; it may be sectioned into well-ordered segments, and into its most detailed parts, but not so the living body. One part is dependent on another and influences the other continuously even if separated in space because all depend upon the presence of a pulsating and creating power."—Dickel.

In conclusion it must be said that there is much that is vitally interesting to a serious student of physical education, and from that point of view this book should be carefully read. It might be dangerous in the hands of a casual teacher who was merely in search of "more material." There is too much implied in this final question which anyone might ask after reading the book, "Even if you believed in all of these basic theoretical assumptions, does it necessarily follow that these exercises constitute the right expression?" The answer can be found only in the mind of each individual reader and undoubtedly it will vary greatly.

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Associate Professor of
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University of Cincinnati

MODERN SWIMMING AND DIVING. By Aileen Riggin. Dodd, Meade & Co. 1931. 219 pp. $1.75.

Miss Riggin, the Olympic Diving Champion in 1920, makes a valuable contribution to swimming and diving in this latest book. She gives to the novice and expert the latest methods of perfecting their strokes in swimming and gives to them in detail the best methods of improving their diving. Miss Riggin is well qualified and is an authority on the subject. The nomenclature used is understandable to the average person.

Chapter one deals with the Common Sense About Swimming and she advocates learning the American Crawl. Chapters two and three give exercises for overcoming fear, breathing, kicking, and arm movements. In chapter four the complete American Crawl and the coordinating of all the movements are discussed. Form is stressed as the first requisite of speed in the water. Chapter five takes up the Back Stroke: It's Value and Function. From a health standpoint the Back Stroke is an all-round developer of the body. The correct method of using the head, arms, and legs is discussed and illustrated. Chaper six gives the faults of the Crawl and Back Stroke. The remedies of all the common faults are given in a concise manner. Chapter seven discusses the Breast Stroke, breaking it up into the following parts: the glide, arm movement, leg movement, breathing, and the coordinated movement. In chapter eight Miss Riggin gives some valuable Hints for Competitive Swimming. In this chapter the correct starts, racing turns, form, and pace are discussed. In this great age of feminine athletics swimming is an ideal competitive field for girls. She states the necessity for form first, then pace. Chapters nine to eighteen are devoted to Fancy Diving. These are taken in progressive steps such as diving preliminaries, the fundamental dives, the twist (or screw), somersaults, gainors, cutaways, hand stand dives, and hints for competitive diving. The last part of the diving section discusses Rules and Regulations. The section on Diving is fully illustrated with drawings and photographs of Miss Riggin showing the correct form of the various dives. The dives are analyzed to the minutest detail so the person reading it could not help but think the whole movement through before trying it out on the springboard. The Rules are taken from the Official Athletic Rules and Handbook, Copyright 1931, by the Amateur Athletic Union of the United States. The Amended International Regulations for Diving are given, so the officials and competitors may become familiar with the new rules under which the Olympic Diving Competition will be held in Los Angeles in 1932.

Chapters nineteen and twenty deal with Life Saving Methods and are taken almost bodily from the American Red Cross Pamphlet, 1005, Red Cross Life Saving Methods. Chapter twenty-one finishes the book with Common Sense in the Water. This book should be of assistance to the student as well as to the instructor in Swimming. A good book for your library. Truly a Modern Swimming and Diving Book.

Franklin B. Hoar,
Taylor Allerdice High School,
Pittsburgh, Pennsylvania

RECREATIONAL SWIMMING ACTIVITIES. (Mimeographed). Thomas K. Cureton, Jr., Department of Physical Education, Y.M.C.A. College, Springfield, Mass. 1930. Price $1.00.

Readers will remember Mr. Staley's *Book of Games, Contests, and Relays adapted to the Gymnasium, Playground, etc.* Now Mr. Cureton gives to us a similar book adapted to the aquatic program. Water games and stunts stimulate the individual's interest in swimming and serve as wholesome physical and social recreation. Directors of swimming have found that short periods of organized play following the instruction period are effective in helping to keep up enthusiasm.

The material in this book is a collection and compilation from scattered reference sources and contains much material actually developed at the Red Cross Institute, summer camps, and classes at the above College. It is the most complete book of its kind.

The book is classified into five parts, namely: 1. The History and Significance of Recreational Swimming Activities. 2. Individual Stunts and Competitions. 3. Team Games and Contests of Relatively Low Organization. 4. Mass Games. 5. Pageants, Mass Exhibitions, Water Plays. A bibliography of four pages completes the book.

This book should prove to be of valuable information to all those interested in the aquatic program in summer camps, recreational centers, Y.M.C.A.'s, schools, and colleges. Mr. Cureton has made a valuable contribution to physical education in this compilation of recreational swimming activities.

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ARCHERY SIMPLIFIED. Phillip Rounsevelle. A. S. Barnes & Company. 120 pp. $2.00.

"Archery Simplified" is written with the novice and the teacher in mind. It is written by an archer, who is also a teacher of archery. The method suggested in the manual has been thoroughly tested by the author in actual instruction given to many beginning classes in the sport.

The manual takes the novice step by step from the time he bends his bow and addresses the target until he draws his arrows and scores them. If he follows the text carefully he will

(1) shoot without self inflicted injury,
(2) shoot with good technique,
(3) shoot and hit,
(4) have an appreciation and understanding of tournaments,
(5) feel the romance of archery.

The common faults in shooting are so clearly and so definitely stated that the teacher can offer suggestions which will correct mistakes and thus encourage effort.

The chapters on creating and maintaining interest in shooting will be a boon to the inexperienced teacher.

The pages devoted to the selection, care, and repair of equipment give valuable information and practical suggestions of economy.

The author discusses ways and means of adapting archery to the home, making it an ideal leisure-time activity.

Emma L. Wilder,
LaCrosse State Teachers College.

A GUIDE BOOK FOR SAFETY EDUCATION. Vol. V. National Bureau of Casualty & Surety Underwriters. 1931. 80 pp. 50c. Cloth, 75c.

This book of eighty odd pages treats the subject of safety education by grades; (a) kindergarten through grade III; (b) grades IV through VI; (c) Grades VII through XII. One of the outstanding features of the work is that of correlation in collateral fields. This method is followed both in the elementary division of the work and in the secondary school division, although these two divisions differ in the method of approach, the elementary being treated entirely by grades whereas the secondary is treated by subject. The point is emphasized throughout that safety education cannot be taught successfully as an isolated subject.

Section one, that is the elementary division, sets up certain activities common to the elementary school and follows these by habits, knowledge, and attitudes to be developed. It would seem that if this order were reversed and the attainments through activities followed the objectives the order would be more logical.

Points emphasized in Section I, kindergarten through grade III, are:

Routine Activities
- Dismissal
- Fire Drills
- Recess
- Lunch Periods

Subject Matter
- English (a somewhat forced correlation)
- Health
- Social Science
- Excursions
- Work Periods

Special Activities
- Story Telling
- Dramatics
- Safety Booklets
- Campaigns
- Safety, Games, etc.

Seasonal Activities
- Hazards encountered during different seasons

Home Safety

Points emphasized in Section I grades IV through VI repeat the above with increased stress laid on a socialized approach and one further adaptable to this grade level.

Sections II and III devoted to the secondary school and vocational school are perhaps a little clearer and more systematic in their approach. The subject is divided into extra-curricular and curricular activities. The extra-curricular include school assemblies, club activities and special campaigns. The curricular activities include the allocation of safety instruction to the subjects best fitted to handle it. Before this allocation was decided upon, thirty-eight high school text books covering a range of seven subjects were analyzed.

A table arrangement is employed in sections II and III stating first the accident to be prevented then the course or courses wherein it should be considered, two columns being used, the first stating the objectives and the second covering materials and activities for their attainment.

Subjects discussed include:

Prevention of automobile accidents
" " drowning
" " fire
" " railroad accidents
" " water transportation accidents
" " home accidents
" " electrical accidents
" " gas accidents
" " school accidents in general
Safety in aviation
Safety in industry
Safe use of chemicals
First Aid

Section IV is composed of notes on extra-curricular activities such as junior safety council, patrols, and high school auto clubs with rather complete suggestions as to how to organize and administer such activities.

An exhaustive bibliography of safety material completes the book. This bibliography containing as it does curriculum material, supplementary ma-

terial, free material, and films and slides should be of great value to any one either directly or indirectly interested in a safety education program. The entire book, in fact, can be highly recommended as an excellent guide in developing this very necessary part of the school curriculum.

V. S. Blanchard,
Director of Health Education,
Detroit Public Schools

PERSONAL HYGIENE APPLIED. Jesse Feiring Williams, M. D. W. B. Saunders Company, Philadelphia. 520 p. $2.25.

Williams' Personal Hygiene Applied has always been a most popular, well planned text book of health for college and general use. It places the proper emphasis upon healthful behavior, rather than simply upon the acquiring of so much health information or knowledge.

The book has been written out of a broad teaching experience. Intimate contact with large numbers of advanced students enriches the life and experience of a teacher. Dr. Williams has passed on to the readers of his book the fruits of his vast experience.

The style is clear and concise, and the material scientifically correct yet expressed in fairly simple and non-technical language. Many a student has told me that he has received an entirely different idea of health and its relationship to life from a study of the book. Certainly Dr. Williams makes a novel and worthwhile contribution in the first five chapters, which contain his philosophy and suggest life ideals

"as is a shame
A man should not be bound by, yet the which
No man can keep."

Following these chapters the author discusses in order the hygiene of the muscular and skeletal systems, nutrition, the respiratory, circulatory, excretory, and nervous systems (the latter containing a concise, rational treatment of mental hygiene), the sexual aspects of life, prevention in specific diseases, and the hygiene of the mouth, eye, and ear.

Dr. Williams speaks fearlessly for what he knows to be right and challenges the traditional and superstitious. Throughout the book, but more particularly in the first few chapters, one feels the positive moral influence of the author's character and comes to realize with him that health *is* mental, moral, and social as well as physical.

The fourth edition has been thoroughly revised throughout, and the entire book reset. The subject matter has been changed and enlarged where necessary to make it conform to new developments in the field. Even the illustrations have, in most part, been replaced by new ones. Probably the most important revision, and one that will be greatly appreciated by teachers, is the appending of "Questions and Exercises" to each chapter. These should also be of considerable assistance to the student in providing a review. A bibliography is omitted, being made unnecessary by a liberal use of footnotes.

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